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TRANSACTIONS

OF THE

NEW YORK STATE MEDICAL ASSOCIATION.

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JOHN H. HINTON, M. D., of New York County.
SAMUEL S. PURPLE, M. D., of New York County.
CALEB GREEN, M. D., of Cortland County,
E. D. FERGUSON, M. D., of Rensselaer County, } *ex officio.*

AUSTIN FLINT, JR., M. D.,
CHAIRMAN AND EDITOR OF THE TRANSACTIONS.

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TRANSACTIONS

OF

THE NEW YORK STATE MEDICAL ASSOCIATION,

FOR THE YEAR 1884.

VOLUME I.

EDITED FOR THE ASSOCIATION

BY AUSTIN FLINT, JR., M. D.,

OF NEW YORK COUNTY.

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D. APPLETON AND COMPANY,
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1885.

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May 11, 1885.

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OFFICERS AND COUNCIL FOR 1884.

PRESIDENT.

HENRY D. DIDAMA, M. D., Syracuse, Onondaga County, Third District.

VICE-PRESIDENTS.

FIRST DISTRICT, J. MORTIMER CRAWE, M. D., Jefferson County.
SECOND DISTRICT, TABOR B. REYNOLDS, M. D., Saratoga County.
FOURTH DISTRICT, B. L. HOVEY, M. D., Monroe County.
FIFTH DISTRICT, NATHANIEL C. HUSTED, M. D., Westchester County.

RECORDING SECRETARY.

CALEB GREEN, M. D., Cortland County.

CORRESPONDING AND STATISTICAL SECRETARY.

E. D. FERGUSON, M. D., Rensselaer County.

TREASURER.

JOHN H. HINTON, M. D., New York County.

MEMBER OF THE COUNCIL AT LARGE.

JOHN W. S. GOULEY, M. D., New York County.

ELECTED MEMBERS OF THE COUNCIL.

FIRST DISTRICT, JOHN P. GRAY, M. D., Oneida County.
" " CONANT SAWYER, M. D., Essex County.
SECOND DISTRICT, J. W. MOORE, M. D., Albany County.
" " THOMAS WILSON, M. D., Columbia County.
THIRD DISTRICT, FREDERICK HYDE, M. D., Cortland County.
" " ELY VAN DE WARKER, M. D., Onondaga County.
FOURTH DISTRICT, EDWARD M. MOORE, M. D., Monroe County.
" " M. W. TOWNSEND, M. D., Genesee County.
FIFTH DISTRICT, JOSEPH C. HUTCHISON, M. D., Kings County.
" " AUSTIN FLINT, JR., M. D., New York County.

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HENRY D. DIDAMA, M. D., PRESIDENT.
CALEB GREEN, M. D., RECORDING SECRETARY.
E. D. FERGUSON, M. D., CORRESPONDING SECRETARY.
Ex-officio members of the committee.

JOHN W. S. GOULEY, M. D., CHAIRMAN.

AUSTIN FLINT, JR., M. D.	N. C. HUSTED, M. D.
JOHN H. HINTON, M. D.	S. T. HUBBARD, M. D.
ABRAM DUBOIS, M. D.	WM. T. LUSK, M. D.
AUSTIN FLINT, M. D.	S. S. PURPLE, M. D.
E. S. F. ARNOLD, M. D.	CHAS. A. LEALE, M. D.
NATHAN BOZEMAN, M. D.	JARED LINSLY, M. D.
ALLEN S. CHURCH, M. D.	ISAAC E. TAYLOR, M. D.
F. S. DENNIS, M. D.	WHITMAN V. WHITE, M. D.
WM. DETMOLD, M. D.	JOSEPH WIENER, M. D.
GASPAR GRISWOLD, M. D.	CHAS. S. WOOD, M. D.
GEO. T. HARRISON, M. D.	WM. YOUNG, M. D.

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OFFICERS AND COUNCIL FOR 1884-'5.

PRESIDENT.

JOHN P. GRAY, M. D., Utica, Oneida County, First District.

VICE-PRESIDENTS.

SECOND DISTRICT, WM. H. ROBB, M. D., Montgomery County.
THIRD DISTRICT, JOHN G. ORTON, M. D., Broome County.
FOURTH DISTRICT, JOSEPH C. GREENE, M. D., Erie County.
FIFTH DISTRICT, JOSEPH C. HUTCHISON, M. D., Kings County.

RECORDING SECRETARY.

CALEB GREEN, M. D., Cortland County.

CORRESPONDING AND STATISTICAL SECRETARY.

E. D. FERGUSON, M. D., Troy, Rensselaer County.

TREASURER.

JOHN H. HINTON, M. D., 41 West Thirty-second Street, New York City.

MEMBER OF THE COUNCIL AT LARGE.

SAMUEL S. PURPLE, M. D., New York County.

ELECTED MEMBERS OF THE COUNCIL.

FIRST DISTRICT, WM. GILLIS, M. D.,
Franklin County, term expires in 1886.
" " CONANT SAWYER, M. D.,
Essex County, term expires in 1885.
SECOND DISTRICT, ROBERT C. McEWEN, M. D.,
Saratoga County, term expires in 1886.
" " THOMAS WILSON, M. D.,
Columbia County, term expires in 1885.

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THIRD DISTRICT, FREDERICK HYDE, M. D.,
Cortland County, term expires in 1886.
" " ELY VAN DE WARKER, M. D.,
Onondaga County, term expires in 1885.
FOURTH DISTRICT, DARWIN COLVIN, M. D.,
Wayne County, term expires in 1886.
" " M. W. TOWNSEND, M. D.,
Genesee County, term expires in 1885.
FIFTH DISTRICT, JOHN W. S. GOULEY, M. D.,
New York County, term expires in 1886.
" " AUSTIN FLINT, JR., M. D.,
New York County, term expires in 1885.

The Second Annual Meeting of the Association will be held in New York City, November 17, 18, and 19, 1885.

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OFFICERS OF THE BRANCH ASSOCIATIONS FOR 1885.

FIRST OR NORTHERN BRANCH.

The First Annual Meeting will be held at Utica, Oneida County, on the second Tuesday in July, 1885.

OFFICERS.

PRESIDENT, JOHN P. GRAY, M. D., Utica, Oneida County.
SECRETARY, WILBUR H. BOOTH, M. D., Utica, Oneida County.

EXECUTIVE COMMITTEE.

L. C. DODGE, M. D., Rouse's Point, Clinton County.
E. F. EDGERLY, M. D., Moriah Center, Essex County.
WM. GILLIS, M. D., Fort Covington, Franklin County.
THOMAS McGANN, M. D., Wells, Hamilton County.
JOHN P. SHARER, M. D., Little Falls, Herkimer County.
IRA H. ABELL, M. D., Antwerp, Jefferson County.
ALBERT A. JOSLIN, M. D., Greig, Lewis County.
G. ALDER BLUMER, M. D., Utica, Oneida County.
BYRON DE WITT, M. D., Oswego, Oswego County.
G. L. SUTTON, M. D., Massena, St. Lawrence County.
JAMES FERGUSON, M. D., Glens Falls, Warren County.

SECOND OR EASTERN BRANCH.

The First Annual Meeting will be held at Saratoga Springs, Saratoga County, on the fourth Tuesday in June, 1885.

OFFICERS.

PRESIDENT, WM. H. ROBB, M. D., Amsterdam, Montgomery County.
SECRETARY, GEO. E. McDONALD, M. D., Schenectady, Schenectady County.

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EXECUTIVE COMMITTEE.

R. H. SABIN, M. D., West Troy, Albany County.
THOMAS WILSON, M. D., Claverack, Columbia County.
C. R. BLAKE, M. D., Northville, Fulton County.
ROBERT SELDEN, M. D., Catskill, Greene County.
EZRA GRAVES, M. D., Amsterdam, Montgomery County.
M. H. BURTON, M. D., Troy, Rensselaer County.
TABOR B. REYNOLDS, M. D., Saratoga Springs, Saratoga County.
H. C. VAN ZANDT, M. D., Schenectady, Schenectady County.
H. F. KINGSLEY, M. D., Schoharie, Schoharie County.
F. J. HINDS, M. D., Salem, Washington County.

THIRD OR CENTRAL BRANCH.

The First Annual Meeting will be held at Syracuse, Onondaga County, on the second Tuesday in June, 1885.

OFFICERS.

PRESIDENT, JOHN G. ORTON, M. D., Binghamton, Broome County.
SECRETARY, CHAS. W. BROWN, M. D., Elmira, Chemung County.

EXECUTIVE COMMITTEE.

J. H. CHITTENDEN, M. D., Binghamton, Broome County.
WM. R. LAIRD, M. D., Auburn, Cayuga County.
GEO. W. AVERY, M. D., Norwich, Chenango County.
F. W. ROSS, M. D., Elmira, Chemung County.
H. C. HENDRICK, M. D., McGrawville, Cortland County.
O. M. ALLABEN, M. D., Margaretville, Delaware County.
H. W. CARPENTER, Oneida, Madison County.
ELY VAN DE WARKER, M. D., Syracuse, Onondaga County.
J. K. LEANING, M. D., Fly Creek, Otsego County.
B. T. SMELZER, M. D., Havana, Schuyler County.
ELIAS LESTER, M. D., Seneca Falls, Seneca County.
R. W. EASTMAN, M. D., Berkshire, Tioga County.
WM. FITCH, M. D., Dryden, Tompkins County.

FOURTH OR WESTERN BRANCH.

The First Annual Meeting will be held at Rochester, Monroe County, on the second Tuesday in May, 1885.

OFFICERS.

PRESIDENT, JOSEPH C. GREENE, M. D., Buffalo, Erie County.
SECRETARY, WILLIAM H. THORNTON, M. D., Buffalo, Erie County.

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EXECUTIVE COMMITTEE.

B. C. WAKLEY, M. D., Angelica, Allegany County.
O. A. TOMPKINS, M. D., Randolph, Cattaraugus County.
WILLIAM CHACE, M. D., Mayville, Chautauqua County.
JOHN CRONYN, M. D., Buffalo, Erie County.
A. P. JACKSON, M. D., Oakfield, Genesee County.
R. J. MENZIE, M. D., Caledonia, Livingston County.
E. M. MOORE, M. D., Rochester, Monroe County.
SIMEON T. CLARK, M. D., Lockport, Niagara County.
JAMES H. ALLEN, M. D., Gorham, Ontario County.
JAMES CHAPMAN, M. D., Medina, Orleans County.
JOHN S. JAMISON, M. D., Hornellsville, Steuben County.
C. G. POMEROY, M. D., Newark, Wayne County.
MILAN BAKER, M. D., Warsaw, Wyoming County.
DAVID M. SMITH, M. D., Penn Yan, Yates County.

FIFTH OR SOUTHERN BRANCH.

The First Annual Meeting will be held in Brooklyn, Kings County, on the second Tuesday in October, 1885.

OFFICERS.

PRESIDENT, JOSEPH C. HUTCHISON, M. D., Brooklyn, Kings County.
SECRETARY, E. H. SQUIBB, M. D., Brooklyn, Kings County.

EXECUTIVE COMMITTEE.

JOHN YOUNG, M. D., Fishkill-on-Hudson, Dutchess County.
R. M. WYCKOFF, M. D., Brooklyn, Kings County.
SAMUEL S. PURPLE, M. D., New York, New York County.
W. B. EAGER, M. D., Middletown, Orange County.
G. W. MURDOCK, M. D., Cold Spring, Putnam County.
EDWARD G. RAVE, M. D., Hicksville, Queens County.
F. U. JOHNSTON, M. D., New Brighton, Richmond County.
WILLIAM GOVAN, M. D., Stony Point, Rockland County.
W. D. WOODEND, M. D., Huntington, Suffolk County.
I. PURDY, M. D., Mongaup Valley, Sullivan County.
P. D. B. HOORNBECK, M. D., Wawarsing, Ulster County.
NATHANIEL C. HUSTED, M. D., Tarrytown, Westchester County.

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LIST OF FELLOWS IN ATTENDANCE AT THE FIRST ANNUAL MEETING IN NEW YORK CITY,

Held November 18, 19, and 20, 1884.

FIRST DISTRICT.

CLINTON COUNTY.

Lyon, E. M., Plattsburgh.

ESSEX COUNTY.

Barton, L., Willsborough.
Sawyer, Conant, Au Sable Forks.

FRANKLIN COUNTY.

Gillis, William, Fort Covington.

HERKIMER COUNTY.

Potter, Vaughn C., Starkville.
Sharer, John P., Little Falls.

JEFFERSON COUNTY.

Abell, Ira H., Antwerp.
Crawe, J. M., Watertown.

ONEIDA COUNTY.

Gray, John P., Utica.
Porter, H. N., New York Mills.

OSWEGO COUNTY.

Hall, William A., Fulton.

WARREN COUNTY.

Barney, C. S., Glens Falls.
Martine, Godfrey R., Glens Falls.
Ferguson, James, Glens Falls.

SECOND DISTRICT.

ALBANY COUNTY.

Hall, John E., Green Island.
Moore, J. W., Cohoes.
Houston, D. W., Cohoes.
Sabin, R. H., West Troy.
Lyon, George E., West Troy.

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COLUMBIA COUNTY.

Benham, J. C., Hudson.
Wilson, Thomas, Claverack.

FULTON COUNTY.

Blake, Clarence R., Northville.

GREENE COUNTY.

Conkling, George, Durham.
Selden, Robert, Catskill.

MONTGOMERY COUNTY.

Ayres, Alexander, Fort Plain.
Biggam, William H., Fort Plain.
Graves, Ezra, Amsterdam.
Leach, H. M., Glen.
Robb, W. H., Amsterdam.
Rulison, Elbert T., Amsterdam.

RENSSELAER COUNTY.

Allen, Charles S., Greenbush.
Bontecou, R. B., Troy.
Burton, M. H., Troy.
Cooper, W. C., Troy.
Ferguson, E. D., Troy.
Hannon, J. C., Hoosac Falls.
Harvie, J. B., Troy.
Mitchell, H. E., Troy.
Seymour, W. Wotkyns, Troy.

SARATOGA COUNTY.

Babcock, Myron N., Saratoga Springs.
McEwen, Robt. C., Saratoga Springs.
Murray, Byron, J., Wilton.
Reynolds, T. B., Saratoga Springs.
Stubbs, Roland H., Waterford.

SCHENECTADY COUNTY.

De La Mater, S. G., Duanesburgh.
McDonald, George E., Schenectady.
Reagles, J. R., Schenectady.
Van Zandt, H. C., Schenectady.

SCHOHARIE COUNTY.

Kingsley, H. F., Schoharie.

THIRD DISTRICT.

BROOME COUNTY.

Chittenden, J. H., Binghamton.
Orton, J. G., Binghamton.
Putnam, F. W., Binghamton.
Richards, C. B., Binghamton.

CAYUGA COUNTY.

Kenyon, M., Moravia.
Laird, William R., Auburn.

CHEMUNG COUNTY.

Brown, C. W., Elmira.
Flood, P. H., Elmira.
Price, J. H., Elmira.
Ross, F. W., Elmira.
Wales, Theron A., Elmira.

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CHENANGO COUNTY.

Avery, G. W., Norwich.
Blair, L. P., McDonough.

CORTLAND COUNTY.

Jewett, H. O., Cortland.
Knapp, John H., Harford.
Tripp, John D., Virgil.

DELAWARE COUNTY.

Allaben, O. M., Margaretville.

MADISON COUNTY.

Carpenter, H. W., Oneida.

ONONDAGA COUNTY.

Aberdein, Robert, Syracuse.
Didama, H. D., Syracuse.
Donohue, F. O., Syracuse.
Earll, George W., Skaneateles.
Edwards, George A., Syracuse.
Gillett, Charles A., Syracuse.
Head, A. D., Syracuse.
Munson, W. W., Otisco.
Parsons, Israel, Marcellus.
Saxer, L. A., Syracuse.
Van de Warker, E., Syracuse.

OTSEGO COUNTY.

Hills, L. H., Cooperstown.
Leaning, J. K., Fly Creek.
Martin, J. H., Otego.

SENECA COUNTY.

Dunn, J., Lodi.

TIOGA COUNTY.

Eastman, R. W., Owego.

FOURTH DISTRICT.

CATTARAUGUS COUNTY.

Tompkins, O. A., Randolph.

CHAUTAUQUA COUNTY.

Ames, Edward, Sherman.
Chace, William, Mayville.
Darling, F. B., Westfield.
Dean, H. J., Brocton.
Strong, Thomas D., Westfield.

ERIE COUNTY.

Banta, Rollin L., Buffalo.
Cronyn, John, Buffalo.
Daniels, Clayton M., Buffalo.
Gay, C. C. F., Buffalo.
Greene, Joseph C., Buffalo.
Greene, W. D., Buffalo.
Hoyer, F. F., Tonawanda.
Johnson, Thomas M., Buffalo.
Lynde, U. C., Buffalo.
Murray, W. D., Tonawanda.
Rochester, T. F., Buffalo.
Tremaine, W. S., Buffalo.
Wyckoff, C. C., Buffalo.

GENESEE COUNTY.

Crane, Frank W., Corfu.
Townsend, M. W., Bergen.

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MONROE COUNTY.

Buckley, Charles, Rochester.
Fuller, Winfield S., Fairport.
Hovey, B. L., Rochester.
Moore, E. M., Rochester.
Reynolds, R. C., Pittsford.

NIAGARA COUNTY.

Clark, S. T., Lockport.

ONTARIO COUNTY.

Allen, D. S., Hall's Corners.
Allen, James H., Gorham.
Smith, J. T., Canandaigua.
Vanderhoof, F. D., Phelps.

ORLEANS COUNTY.

Bailey, William C., Albion.
Barnum, E. E., Waterport.
Chapman, James, Medina.

STEUBEN COUNTY.

Ellison, M. D., Canisteo.
Jamison, John S., Hornellsville.

WAYNE COUNTY.

Arnold, J. N., Clyde.
Colvin, Darwin, Clyde.
Pomeroy, C. G., Newark.
Sayers, Alexander, Marion.
Sprague, J. A., Williamson.

WYOMING COUNTY.

Baker, Milan, Warsaw.
Ellinwood, A. J., Attica.

FIFTH DISTRICT.

DUTCHESS COUNTY.

Barnes, Edwin, Pleasant Plains.
Bayley, Guy Carlton, Poughkeepsie.
Fletcher, C. L., Wing's Station.
Porteous, J. G., Poughkeepsie.
Pultz, M. T., Stanfordville.
Van Wyck, R. C., Hopewell Junction.
Young, John, Fishkill-on-Hudson.

KINGS COUNTY.

Baker, G. W., Brooklyn.
Brundage, Amos H., Brooklyn.
Conway, John Francis, Brooklyn.
Hutchison, Joseph C., Brooklyn.
Leighton, N. W., Brooklyn.
Lloyd, T. M., Brooklyn.
Lung, J. B., Brooklyn.
McCollom, William, Brooklyn.
Minard, E. J. C., Brooklyn.
Murray, S. J., Brooklyn.
North, Nelson L., Brooklyn.
Paine, Arthur R., Brooklyn.
Partridge, Charles C., Brooklyn.
Pray, S. R., Brooklyn.
Rushmore, J. D., Brooklyn.
Russell, W. G., Brooklyn.
Segur, Avery, Brooklyn.
Squibb, E. H., Brooklyn.
Squibb, E. R., Brooklyn.
Thayer, W. Henry, Brooklyn.
Williams, W. H., Brooklyn.

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NEW YORK COUNTY.

Allen, S. Busby, New York.
Arnold, E. S. F., New York.
Bathgate, J., Morrisania, New York.
Blakeman, W. N., New York.
Bozeman, Nathan, New York.
Bryant, J. D., New York.
Bull, Charles Stedman, New York.
Burchard, T. H., New York.
Carter, H. Skelton, New York.
Chauveau, Jean F., New York.
Coe, H. C., New York.
Conover, W. S., New York.
Curry, Walker, New York.
Denison, C. Ellery, New York.
Denison, Ellery, New York.
Dennis, Frederic S., New York.
Dent, Emmet C., New York.
Detmold, William, New York.
Du Bois, Abram, New York.
Du Bois, Matthew B., New York.
Eliot, Ellsworth, New York.
Flint, Austin, New York.
Flint, Austin, Jr., New York.
Flint, W. H., New York.
Franklin, Thomas M., New York.
Furman, Guido, New York.
Garrish, J. P., New York.
Gouley, J. W. S., New York.
Griswold, Gaspar, New York.
Hamilton, Frank H., New York.
Harrison, George T., New York.
Hills, S. Augden, New York.
Hinton, John H., New York.
Hodgman, Abbott, New York.
Hubbard, S. T., New York.
Janeway, Edward G., New York.
Leale, Charles A., New York.
Lusk, William T., New York.
McLeod, S. B. Wylie, New York.
McLochlin, James A., New York.
McNamara, L. J., New York.
Manley, Thomas H., New York.
Miller, W. T., New York.
Mitchell, H. W., New York.
Murphy, John, New York.
Newman, Robert, New York.
Oberndorfer, Isidor P., New York.
Parsons, John, New York.
Porter, P. Brynberg, New York.
Purple, S. S., New York.
Ricketts, B. M., New York.
Smith, J. Lewis, New York.
Smith, Samuel W., New York.
Smith, Stephen, New York.
Stephens, Frederick P., New York.
Taylor, Isaac E., New York.
Thomas, T. Gaillard, New York.
Tyler, Hoell, New York.
Wallach, Joseph G., New York.
White, Whitman V., New York.
White, William T., New York.
Whitehorne, Edward E., New York.
Wood, Charles S., New York.
Young, William, New York.

ORANGE COUNTY.

Eager, William B., Middletown.

PUTNAM COUNTY.

Murdock, G. W., Cold Springs.

QUEENS COUNTY.

Burns, William J., Roslyn.
Davidson, John, Hempstead.
Webb, Edwin, Hempstead.

RICHMOND COUNTY.

Carrol, A. L., New Brighton.

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ROCKLAND COUNTY.

Govan, W., Stony Point.

SUFFOLK COUNTY.

Banks, George B., Huntington.
Chambers, M. L., Port Jefferson.

SULLIVAN COUNTY.

Munson, J. A., Grahamville.
Purdy, Isaac, Mongaup Valley.

ULSTER COUNTY.

Chambers, Jacob, Kingston.
Hoornbeck, Philip D. B., Wawarsing.
Van Hoevenberg, H., Kingston.
Ward, Stanley M., Ellenville.

WESTCHESTER COUNTY.

Brush, E. F., Mount Vernon.
Collins, Isaac G., Sing Sing.
Furman, J. Henry, Tarrytown.
Huntington, H. K., New Rochelle.
Husted, N. C., Tarrytown.
Lyons, G. A., New Rochelle.
Schmid, H. Ernest, White Plains.
Southworth, R. J., Yonkers.
Wells, William L., New Rochelle.

SUMMARY, BY DISTRICTS, OF FELLOWS IN ATTENDANCE.

First District	14
Second District	85
Third District	84
Fourth District	43
Fifth District	116
Total	242

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DELEGATES FROM OTHER ASSOCIATIONS AND INVITED GUESTS IN ATTENDANCE.

MEDICAL SOCIETY OF THE STATE OF CONNECTICUT.

W. C. WILE, M. D., SANDY HOOK, . . Connecticut.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

W. B. ATKINSON, M. D., PHILADELPHIA, . . Pennsylvania.
BENJAMIN LEE, M. D., " . . . "
HENRY H. SMITH, M. D., " . . . "
J. V. SHOEMAKER, M. D, " . . . "

MEDICAL SOCIETY OF THE STATE OF VERMONT.

S. S. CLARK, M. D., ST. ALBANS, ... Vermont.
E. F. UPHAM, M. D., WEST RANDOLPH, . . . "

INVITED GUESTS IN ATTENDANCE.

CHARLES D. ALTON, M. D., HARTFORD, . . Connecticut.
S. G. HUBBARD, M. D., NEW HAVEN, . . . "
M. C. WHITE, M. D., " . . . "
A. T. P. GARNETT, M. D., WASHINGTON, . District of Columbia.
H. B. RANSOM, M. D., BURLINGTON, ... Iowa.
W. C. B. FIFIELD, M. D., BOSTON, . . . Massachusetts.
H. B. OSBORN, M. D., KALAMAZOO, ... Michigan.
S. Z. EARLE, M. D., ST. JOHN, ... New Brunswick.
THOS. WALKER, M. D., " . . . . . "
T. R. VARICK, M. D., JERSEY CITY, . . . New Jersey.
J. SOLIS COHEN, M. D., PHILADELPHIA, . . Pennsylvania.
R. A. CLEEMANN, M. D., " . . . "
S. W. GROSS, M. D., " . . . "
JOHN M. KEATING, M. D., " . . . "
GEORGE McCLELLAN, M. D., " . . . "
CHAS. B. NANCREDE, M. D., " . . . "
JOHN H. PACKARD, M. D., " . . . "
WM. H. PANCOAST, M. D., " . . . "
E. O. SHAKESPEARE, M. D., " . . . "
J. H. BAXTER, M. D., UNITED STATES ARMY.
THOS. McPARLIN, M. D., " "
E. H. GREEN, M. D., UNITED STATES NAVY.
GEORGE PECK, M. D., " "
J. C. SPEAR, M. D., " "

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ADDRESS OF WELCOME AND REPORT OF THE COMMITTEE OF ARRANGEMENTS.

By J. W. S. Gouley, M. D., of New York County,
Chairman of the Committee.

November 18, 1884.

Gentlemen: In the name of the Fellows of New York County, I have the pleasure of tendering you a most cordial welcome to our city and to the first annual meeting of the New York State Medical Association, which, God grant, will year after year become more and more useful to the profession and beneficent to the public.

The scheme of our proceedings has already been laid before you; each Fellow having received a copy of the programme. It is now necessary only that you should be reminded of the invitation of the Fellows of New York County to an evening entertainment for next Thursday, and of the proceedings of the morning of the fourth day, which are to be in the amphitheatre of Bellevue Hospital. In the afternoon of the fourth day, there will be an excursion to the islands in the East River, and to the different hospitals and asylums under the charge of the Commissioners of Charities and Correction, who heartily invite you all to inspect these institutions.

A brief analysis of our programme may now be of interest:

Four addresses and forty-six essays are offered you. These fifty scientific contributions come from the five geographical districts, in the following proportions:

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The	First	District	sends	.	.	.	1
"	Second	"	"	.	.	.	9
"	Third	"	"	.	.	.	7
"	Fourth	"	"	.	.	.	10
"	Fifth	"	"	.	.	.	23
							50

In these five districts, Fellows of the Association from fifteen counties have contributed papers, in the following proportions:

Second	District,	Albany	County,	. .	2
Third	"	Broome	"	. .	2
Third	"	Chemung	"	. .	1
Third	"	Cortland	"	. .	2
Fourth	"	Erie	"	. .	5
Fifth	"	Kings	"	. .	4
Fourth	"	Monroe	"	. .	3
Second	"	Montgomery	"	. .	1
Fifth	"	New York	"	. .	18
Third	"	Onondaga	"	. .	2
First	"	Oneida	"	. .	1
Second	"	Rensselaer	"	. .	6
Fifth	"	Richmond	"	. .	1
Fourth	"	Steuben	"	. .	1
Fourth	"	Wayne	"	. .	1
					50

It is to be hoped that, at future meetings of this Association, every county in the State will be represented by one or more essayists, and that the increase in the number will lead to the permanent establishment of sections in the Association, to be devoted solely to the reading of papers and their discussion.

The fifty scientific contributions, including the four addresses, to be presented this year, may be classified, as regards their subject-matter, as follows:

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17	are on	Surgery.
15	"	Medicine.
11	"	Obstetrics and Gynæcology.
3	"	Ophthalmology.
2	"	Materia Medica.
1	"	Physiology.
1	"	Insanity.
50		

The titles of a number of papers have been received since the publication of the programme; and it is likely that others will be offered before the close of the meeting.

The question will doubtless arise in the minds of many, Can this unusually large number of papers be disposed of in the few sessions to be held this week? The answer is conditionally affirmative. Every paper can be read either fully, by abstract, or by title, and most of them can be freely discussed, provided that a limit be placed to the length of time for reading and discussion, and that the strictest economy of time be observed. There are at most twenty hours to be devoted to the reading and discussion of these papers during the three afternoon and the two night sessions.

If each Fellow reading a paper will, at its conclusion, briefly indicate the points he particularly wishes to be considered, it will not only render the discussion more interesting than otherwise, and more to the point, but will save valuable time.

There is always great loss of time in irrelevant remarks. To avoid this, the Association should refuse to tolerate any discussion which does not bear directly upon the subjects treated of in each essay. Time is also lost by unnecessary delay between the conclusion of the discussion on one paper and the introduction of the next. The Committee on Scientific Contributions will surely take measures to avoid such delays.

The primary aims of this Association, as you know, are the cultivation and advancement of the science of medicine and the promotion of public health. Let us all strive incessantly to further these aims; let each individual Fellow labor as arduously

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as if the success of the undertaking depended entirely upon his own efforts; let every one contribute his share in the good work by an essay, by discussion and legitimate criticism of the topics introduced by others, or by committee or other work, and our Association will soon realize in the highest degree the ends to which we aspire.

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THE PRESIDENT'S ANNUAL ADDRESS.—CONSERVATIVE PROGRESS.

By Henry D. Didama, M. D., of Onondaga County.

November 18, 1884.

The advance of science is hindered not more by obstinacy than by fickleness. The skepticism which uses an honest crucible is a blessing; the skepticism which wields a club and smashes old things indiscriminately merely because they are ancient, is a curse. Underneath its destructive malice is often a credulous and craven tenderness for anything which is new. One face of Janus was emblematic of Memory and looked benignly upon the past with its garnered treasures; the other represented Hope and peered eagerly into the rich possibilities and promises of the future. These faces were not mutually inimical; they were complemental; they were unity in diversity. In medicine, bigotry and laziness sometimes call themselves conservative; opposed to these are discontent and love of novelty, which may assume the label, progress; but genuine progress and enlightened conservatism work harmoniously together to perfect medical science: the one patiently tests all things; the other holds fast that which is good. In medicine much is worthy of conservation; not a little is still moot; research is very active and confident; vast fields await exploration. Your attention is invited now to a few illustrations and suggestions.

In pathology, the predisposing causes of disease are fairly well known by long and careful observation; but in the dazzling field of the microscope they are apt to be forgotten. Inheritance, acquired vices, insufficient, improper, or excessive food and drink, vitiated air, deficient sunlight, exposures, indo-

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lence, overwork, worry, these are predisponents which act by so impairing the resisting power, that attacking foes of feeble potency are able to gain an easy victory.

Many diseases, such as eruptive, contagious, and malarial fevers, pneumonia, consumption, erysipelas, septicæmia, pyæmia, and even suppuration, are now quite generally regarded as the work of micro-organisms, the *contagium vivum.*

The doctrine of germs is essentially modern, although Harvey is thought to have had glimpses of its truth more than two hundred years ago. But Harvey never regarded germs as living particles, capable of prolific multiplication; he considered the emanations from a certain disease able, by what he called a seminal influence, to propagate the same disease in a healthy person.

The witty Jonathan Swift, in the early part of the last century, described a specialist in microscopy whose enthusiasm is hardly eclipsed by the zeal of any modern observer. This enthusiast had discovered worms in the flesh of certain diseased animals, and he published an account of his observations. His paper attracted some attention and received favorable comment. Inflated with vanity, the now famous discoverer continued to use his lens and forthwith published the startling announcement that worms were the fountain and origin of all diseases.

In the present germ excitement, which is analogous to the gold fever of 1848 and the petroleum craze of later years, we are not to ignore other and well-established causes of disease. We encourage the search for new microzymes, as we do prospecting for gold and oil; we watch intently each promising indication; but we prudently reserve our credence and wait for verifications of alleged discoveries, knowing that some observers have that keen vision pointed out in the couplet:

> "Optics sharp it needs, I ween,
> To see what is not to be seen."

We not only twine fadeless chaplets for the modest brows of those who unearth a new bacillus whose pedigree can be established beyond question, but we bestow our admiration upon those ingenious philological microscopists who, if they can not

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diagnosticate hereditary diseases by the physiognomy of the blood-corpuscle, are yet able to invent some magnificent name for the minutest pest which infests the human organism.

We urge that investigation can not be too extensive and thorough; but we counsel that there be no premature rushing into print with generalizations, lest the observations on which they are based shall turn out illusory, lest alleged causes shall prove to be but unimportant coincidences.

The reward for patient work may be slow in coming, like the flour from the mills of the gods, but it will be of excellent quality at last.

If he be worthy of national gratitude who makes two blades of unnecessary grass grow where but one had a feeble struggle for existence before, how much more deserving of temporary immortality is he who establishes his claim to a new cacozyme, be it bacillus, or micrococcus, or spirillum, especially if he can tell us what to do with it!

The specific micro-organisms of tuberculosis and splenic fever and, perhaps, of cholera have been differentiated; those of miasmatic diseases, seen in Ohio as the palmella by a genius of sharp optics, and as a micrococcus by Italian observers, remain to be verified. There should be little doubt of their existence, notwithstanding the incredulity recently expressed by an eminent writer who still pins his faith to the ancient notion that a poison is generated by decomposing vegetation. For, while a living and developing organism will account for all the facts of origin, incubation, and behavior of miasmatic fevers, a dead poison is quite unsatisfactory and insufficient. But the germs which cause scarlatina, measles, pertussis, etc., have thus far eluded search; and it is still an undecided question whether or not croupous pneumonitis be a germ-fever with a local expression. The suggestions of our eminent friend and associate who called attention to this point several years ago are entitled to, and are receiving consideration throughout the world. Continued observations are still needed to confirm or overthrow the proposition.

In therapeutics, conservative progress finds an ample field.

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To prevent; to guide to a favorable termination, when prevention has been neglected; to alleviate, when recovery is impossible; to delay the inevitable escape of the soul from its weary prison; these are the important duties of the physician. A thorough knowledge of the composition and structure of the body, and of the relation of parts, is indeed of great importance. The action of organs in health and their perverted action in disease rightly demand the most careful study. The foes which boldly attack the citadel of life, and the occult influences which insidiously undermine and sap the vital forces, these may well engage our earnest attention. The analysis of our secretions and excretions, of our foods and medicines and poisons, deserves all the consideration which it receives.

The innumerable instruments of precision, which promise to substitute mathematical accuracy for vague guesses and which are too often used, not to supplement but to supplant other and valuable methods of investigation, these, like the tribe of Abou Ben Adhem, will continue to increase till they become multitudinous, if not perplexing, like the grasshoppers of the West. These rightfully challenge recognition and study, while with unappeasable appetite they devour our substance if we attempt to add them all to our *armamentarium*. But anatomy and histology, physiology, pathology and chemistry, ætiology, diagnosis, and prognosis, the possession of all the "scopes," all the "graphs," and all the "meters," and the familiar and dexterous use of them, all these, interesting as they may be to the scientist, important and indispensable as they may be as preliminaries, foundations, and aids to medical skill, all these are practically worthless except as they contribute to the relief of human suffering.

"The real physician," says Broussais, "is the one who cures; the observation which does not teach the art of healing is not that of a physician, it is that of a naturalist."

And, paraphrasing Sacred Writ, it may be added: There remaineth therefore Pathology, Diagnosis, Therapeutics, these three; but the greatest of these is Therapeutics.

Therapeutics, then, which includes all means to prevent

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and manage disease, being the superstructure to which all medical "ologies" are but foundation-stones and adornments, the very fruitage of the tree of life, the sole beneficent application of all medical science, its importance to humanity and therefore to the physician, can not be overestimated.

Efforts to elevate the standard of medical requirements are worthy of commendation. Owing to the fierce rivalry of schools and the facility with which incompetence secures a diploma, it has been deemed very important, by many reformers, to have the licensing power placed in the hands of an independent board of examiners. Should such a board be constituted, it may properly require a thorough preliminary training, and it may be so comprehensive in its demands and so vigorous in its examinations that no one guilty of ignorance regarding the fundamental branches of medical and other cognate sciences shall be able to gain admission to the ranks of a noble profession. But if, in these exalted demands and these exacting examinations, therapeutics be ignored or belittled; if therapeutics be not elevated to the highest position and regarded as the one thing needful, the very vital principle without which everything else is but dead and useless science, and with which alone the physician does all his skillful deeds of benevolence; then the ordeal to which the candidate is subjected is delusive and beggarly. It may even deserve reprobation. The object of a board of examiners should be to protect the community from the ravages of additional incompetency. Its action must of necessity be prospective. It can not hope to uproot a professional ignorance which, associated with length of years and engaging manners, has become popular and almost sacred. But it can determine the minimum amount of knowledge which must be possessed by every candidate who shall gain admission to the medical fraternity. If its examinations shall be comprehensive and searching, and at the same time not so narrow and technical as to regard an error in orthography less excusable than a gross blunder in medical practice, it may accomplish a good purpose. But if it tithes, rigorously, the mint, anise, and cumin, and neglects the weightier matters of applied medical science; if it shows partiality,

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allowing Vitreus Cæruleus, who believes the radiance which filters through blue glass to be the only and omnipotent remedy for all diseases; and the gushing Aquarius, who dotes on and swears by magnetized spring-water as a panacea; and the innocent Credulus, who puts all his faith in faith alone; and the oily and plausible Sinbad, who pretends to be under the guidance of disembodied spirits; if the board allow these to shirk entirely the examination in therapeutics and materia medica to which plain, unpretending Medicus, who recognizes the importance of these sciences, is subjected, then when it puts these five on the same high level before the public, giving to each the same indorsement and the same license, it inflicts a wrong on Medicus, places an unnecessary and useless burden on Cæruleus, Aquarius, Credulus, and Sinbad, and perpetrates a fraud on a confiding and misled community.

To serve the public wisely and well, the board should subject every applicant, whatever his callow crotchets, prejudices, or intentions may be, to the same examination in every branch of medical science, as understood by the vast majority of the profession. Possessing the learning required to pass this examination, and endowed with his credentials, the tyro should be at liberty to adopt and practice any special delusion or idiocy which his fancy may indicate or the credulity of the public may make profitable. For, as he can never entirely divest himself of his useful knowledge, the community will have all the protection it is possible for an examining board to furnish.

Some of the general principles of therapeutics are worthy of the most careful preservation. Many of the measures employed in preventing and stamping out various so-called zymotic diseases are fairly successful; and constant research is adding largely to their numbers and potency. The importance of iodine and mercury in certain diseases; the palliative and curative effect of opium in a variety of complaints; the efficacy of Peruvian bark in miasmatic affections; the desirability and possibility of preventing and subduing high temperatures in fevers and inflammations; the wonderful results secured by certain heart tonics; the neutralizing and eliminating measures which

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have shortened the term of rheumatism from six weeks to six days; the undiminished power for good of ferruginous preparations in suitable cases; the occasional utility and even saving power of the once abused and now as much maligned venesection; these are examples of therapeutic principles and practice whose truth is attested by countless critical, intelligent observers throughout the whole world.

New discoveries in ætiology, pathology, and materia medica will modify our views and constantly increase our ability to overcome disease. They will show us when to interfere actively, and when to watch and wait. And, while we hold fast to well-founded principles of treatment and to remedies whose value has been established, we give a hearty welcome and testing to every new measure and to every new medicine, which has a satisfactory indorsement. We are hampered by no dogma; so that, while we are not seduced by utopian theories, while we make no experiments with obvious and gross delusions, and while we set our faces like flint against fraudulent pretenses and practices, we carefully consider every promising suggestion, by whomsoever made, and we gladly adopt every useful discovery and every tested new application of old principles and remedies.

Is not this platform broad enough to afford standing and working room for every one who seeks to know and practice truth?

It is fashionable in certain quarters to decry the medical schools of our country, to censure their practice of so oiling their portals that the grossest ignorance can find an easy and welcome admission, to inveigh against their methods of teaching, and to condemn the facile, if not farcical examinations which permit incompetence to seize a title and go forth to prey upon the community. Indiscriminate and unmixed reprobation, however, is not only unjust, it defeats its purpose. For whatever may be the deficiencies of our great schools, however far they fall short of what they can and should be, they have excellences which should not be ignored. They have given to the profession men renowned throughout the world for their

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wisdom and skill. In their corps of teachers, are many whose aptness, industry, and ability are unsurpassed. They afford clinical opportunities so rich and varied as to leave nothing to be desired. If their requirements for entrance and exit have been too low, is it not because the profession have not demanded that they be higher? If the terms have been too short, the years required too few, and the methods unnatural and deficient, is it not because the profession have given little practical encouragement to the hearty, even if too speedily abandoned, attempts which some of the schools have made to secure needful reform?

Can it be doubted that the accomplished and devoted teachers in the schools are always ready and willing to respond to any earnest call of the profession for a higher standard? Shall this call be made? Will those who make the demand prove their sincerity by pledging their influence, their aid and comfort to those schools which, at whatever labor and expense, shall eliminate the faults of the present system and bring it into harmony with the teaching in all other institutions of learning and with the law of mental evolution and growth? That brilliant results have been achieved under the prevailing system of medical teaching, has not been and can not be denied. Would they not have been still more brilliant and satisfactory under a better system?

The native Ceylonese, with instruments which would hardly be tolerated in an American blacksmith's shop, sits on the ground and patiently fabricates jewelry and filigree which are marvels of exquisite delicacy and beauty. Retaining his present artistic taste and skill, how much more and better work could he do with the perfect instruments of his civilized brother!

The superiority of the graded system of medical training is not universally acknowledged. At least one prominent teacher and one good medical journal openly profess, not simply a contentment with the present unnatural system, but an admiration for it and a desire to have it conserved. The attempts to reduce chaotic elements to order they denounce as impracticable, and they kindly predict and counsel their early abandonment.

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Proposed reforms always provoke some opposition. The attempt to introduce into Mexican farming such modern implements as the steel plow, the cradle, the reaper, and the thresher is earnestly combated by many of the native workers. They not only adhere to the sickle and to the old one-handled Palestine plow (an iron-shod stick which barely scratches the soil), and to the threshing-floor, where oxen and mules tread out the grain, but they insist that this clumsy system is the best. They hill their corn as our own farmers did fifty years ago. They use a hoe in the operation, but the hoe has no handle, and the native partly creeps and partly jumps, like a kangaroo, from hill to hill, as he goes through the field. Still he loves and reveres the old ancestral implement. He denounces the handle as a device to promote laziness; and he asserts that, with a primitive hoe in each hand, he can do more and better work. It was only by compulsion that these earnest Mexican conservatives could be brought to use wheelbarrows on the public works. They preferred to carry their loads of stone and dirt on their backs and heads; and such was their devotion to their ancient method, that at first they actually shouldered the wheelbarrow, dirt and all, and then vociferously condemned the new notion as a fraud and nuisance.

Honest differences of opinion should be treated with respect and tenderness. And, since these differences exist regarding medical education, it may not be unprofitable briefly to compare and contrast the antique with the modern system.

Most of you know, from personal experience, that in the large majority of medical schools in this country the student, at the very outset, is expected and required to hear lectures on all the branches taught (the most advanced as well as the elementary) every day. Although not usual, the occurrences to be described are by no means impossible. An ingenuous youth, full of zeal, industrious, ambitious, but with scant knowledge of the elements of the most moderate education, is received without question at the grand old conservative college. He matriculates. He attends a lecture on anatomy, the first he ever heard of this important subject. He is delighted. He

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enters the laboratory and listens with pleasure and profit to the professor of chemistry. Truly, he says to himself, the ways of wisdom are ways of pleasantness, and all her paths are flowery walks of peace.

He hastens into the surgical department. The lecture is introductory. But in a few days, and while his knowledge of anatomy is still limited to an awful admiration for the suspended skeleton and for the tray of disarticulated bones on the table, the subject of the lecture is aneurism. The bright description, the lucid explanation, make the whole subject interesting and satisfactory. The eloquent professor describes the operation for ligating the radial artery in its lower third: "Hold the hand supine; make an incision two inches long on the radial side of the flexor carpi radialis. The integument and aponeurosis being laid open, the artery is at once brought into view."

This is all clear enough to you, learned Fellows, because you have received sufficient anatomical instruction. But the fresh pupil whom we are considering (one of us perhaps), whose hopes but a few days before were radiant and towering, becomes perplexed and disheartened, if not disgusted, because he has no knowledge of what radial may mean, whether aponeurosis be an animal or vegetable, or whether the flexor carpi radialis be bone, nerve, or sinew, situated on the crown of the head or the sole of the foot.

After the wearisome (wearisome because incomprehensible, incomprehensible because the student has not been prepared to understand it) lecture on surgery is ended, the still plucky pupil ventures into the room where the professor of the art of medicine is showing how insufficiency of the tricuspid valve, by obstructing the onward flow of blood in the vena cava, may cause congestion of the portal system, and then gastric catarrh, hæmorrhage, and albuminuria. He does not doubt the truth of the demonstration. But it loses all its beauty and force because the poor fellow has not the slightest notion of what the tricuspid or any other valve may be, or where the vena cava or portal system is located.

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In the obstetric department a similar failure to comprehend the lecturer results from an equal want of preparation. But the rules of the school require attendance on all the lectures. And so, hour after hour, every day is wasted, by an earnest and ambitious student, in listening to what he can not understand, and thus neglecting studies which are prerequisite.

The short winter course is passed, and the student emerges in the early spring, with a head full of jumbled and meaningless words, with muddled ideas of medicine, obstetrics, and surgery, and with insufficient knowledge of anatomy, physiology, and chemistry, because the time which should have been devoted to these fundamental studies has been frittered away in a dazed attendance on lectures he had never been prepared to understand. The next winter he goes through exactly the same course, but he is now better able to comprehend the teaching.

In building a dwelling house, you prepare a plan (first consulting the good wife regarding the fitness of things), and then you go on decently and in order. You lay foundations deep, broad, and strong. You carry up the superstructure carefully and gradually, so that no cracks or flaws shall afterward appear. You put on the roof, finish the rooms honestly, without veneer or graining, and wait a sufficient time before you move in with your family. You do not jumble all together, working an hour on the turret, another on the trench for the cellar-walls, and still another on window-sills and hard finish and joists and rafters.

If you were to train as an athlete, you would not unwisely overstrain your muscles the first day by doing work beyond your ability. You would begin with light weights and moderate walks, increasing the labor each day as the muscles became developed and strong.

In his attempt to make an accomplished musician, the wise teacher first trains the fingers and wrists of the pupil, and requires much practicing of the exercises and scales, until all the fundamentals are thoroughly mastered. He does not allow the aspiring youth to practice the rudiments in the forenoon, and then in the afternoon murder the symphonies of Beethoven, or

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attempt to render the brilliant lunacies of Wagner, at the very outset of his career.

If it should be proposed to evolve a mathematician out of raw material, we should not ask the candidate the first day to solve the problem of the hare and hounds or to listen to a demonstration of the twelfth proposition of Euclid. We should begin with the simplest examples in addition and subtraction, and then advance through the higher and still higher departments, until at length, like Le Verrier, the fully developed candidate could discover and locate a planet by pure mathematical calculation.

In training a child to be a linguist, we begin with the simplest form of speech and lead him on, by precept and example, until he can speak with the tongues of men and of angels, and have charity besides. It would be unnatural, and therefore unwise, to allow him to waste time at the start in listening to the sounding brass of Cicero's orations or to the tinkling cymbals of Xenophon's fables.

If in every other department of human industry, the natural-development plan is pursued without opposition or question. Why should medical education be the marked exception? Why, if we wish, as we ought, to utilize to the utmost the time and talents of a medical student, should we not take him step by step (for that is what the graded course means) through anatomy and physiology, histology and chemistry, up to surgery and practice and obstetrics? Why should we have him fritter away the scant but precious hours of his first course of lectures in listening to what he can not by any possibility fully comprehend? Would this not be doing what ought not to be done, and leaving undone what ought to be done?

The natural system of medical education is no longer a beautiful and dreamy speculation. It has been fairly tested, and it has been found efficient. Those who know it best give it the heartiest approval. The requirements for matriculation are, or should be, more and more exacting every year. The written and oral examinations are frequent and thorough. The yearly and final ordeals are very trying and severe; but the

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students who have brains, application, and faithfulness, always come through triumphantly. Even those whose natural capacity is not the greatest succeed remarkably. Under a natural system, their mental growth is rapid and astonishing. At the last they seldom fail, because their time has been husbanded and properly employed, because their studies have been interesting and delightful, inasmuch as they have been thoroughly comprehended and mastered every step of the way.

Here are two pictures. Do they not represent the prominent differences in requirements and results between the ancient, but still prevailing system, and the modern one?

In one case, no preliminary examination; only two short courses of lectures required, the second identical with the first; the novice required to attend lectures on every subject every day, neglecting preliminary work because the time which might have been devoted to it has been worse than wasted in hearing learned talk which he was not prepared to understand; valuable clinical and laboratory opportunities; no examinations to advance to higher grades, for there are no grades; and a final examination which is so superficial in many instances as to be little better than a farce, and whose meshes are large enough to let mediocrity and inferiority, as well as the superiority which is always present, pass through with the greatest ease.

In the other case, preliminary examinations which require a certain, even if insufficient, preparation; three years of training at the college, the novice beginning at the beginning; all his time employed in hearing and doing what he can and should understand; his capability and progress tested by frequent oral and written examinations; his advance from grade to grade checked if his fitness be not established; valuable clinical and laboratory opportunities; searching yearly examinations; and a final examination, which, although of great severity, does not, except in rare instances, result in rejection, because the student has been educated in a way which accords with and does not violate nature.

Of these two systems, judge ye which is the better!

And yet the difference between the old system and the new

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is largely one of arrangement. A change from one to the other can be effected with as little commotion as was noticed when twenty discordant and puzzling computations were consolidated into the present admirable system of standard time. No more teachers would be required, and no better lectures could be delivered or would be needed. The labors of the professors would be considerably increased because the total length of the lecture season would be more than doubled; but they would hardly be conscious that a radical change, amounting to a revolution, had taken place. But the students, who are to be the physicians of the future, and the confiding patients of these physicians would derive incalculable benefit.

Would not the adoption, by all the schools of this country, certainly by those of this State, and especially by the three prominent ones in this medical metropolis, of the natural system, with the honest and vigorous enforcements of its entire demands, secure a practical elevation of the medical standard, so much yearned for, deserve the support of the profession, and restore a confidence which has been seriously impaired? Would not this adoption protect the community to the greatest extent possible from incompetence, and render unnecessary, so far as legitimate medicine is concerned (the only medicine about which we have any solicitude), the proposed State board of incongruous medical examiners?

And now, Fellows of the Association, good fellows and patient, one and all, I thank you for the very great, and, of course, unsought honor (for it would not be an honor if I had sought it) you have conferred in choosing me to be your first presiding officer. I confidently count on your kindly forbearance and your generous assistance. I congratulate you that our first meeting begins so auspiciously, and that the promised material for our coming three days' scientific festival has never been surpassed in richness or variety. I cordially invite each and every one to contribute to the success of the feast.

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ADDRESS ON SURGERY.—TRANSFUSION.

By E. M. Moore, M. D., of Monroe County.

November 18, 1884.

Mr. President: When choosing a topic to present to your notice, a little reflection soon convinced me that an attempt to separate the discoveries of the year from the general mass of surgical literature would not only be difficult but unsatisfactory from its fragmentary character. This function is well performed by the retrospects and compendiums. Moreover, you would have a right to expect from me opinions on the subjects brought forward. These could hardly be rendered on a multiplicity of topics. I have, therefore, chosen to bring to your notice a few facts in connection with the transfusion of blood. I do this because the subject, looked at from any side, is still in a state of doubt and uncertainty. A few years, since the attention of the profession was sharply directed to this topic. Interest for a while has been abated, but much is still to be learned. Various methods have been proposed, but no one has been proved to be so much superior to all others as to displace them, or, indeed, to inspire general confidence.

When transfusion of blood was first successfully performed, it excited the highest hopes of its friends. It attracted the attention of the great. Vast possibilities of therapeutic value were surmised. Diseased blood was to be removed and the healthy was to replace it, so that sickness was to be eradicated from the organism. Old age was to receive the elixir of life by the new method. For, was not the blood of the young to course

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in the veins of the old? We all know how soon the enthusiasts awakened from these dreams. Some unfortunate occurrences induced the interference of Government, and the practice of transfusion was condemned to a long sleep.

In modern times, fresh hopes of the therapeutic value of transfusion have been revived. Of this, however, it must be confessed that our knowledge is very limited. If it have any, it is the business of the profession to definitely determine it. That it possesses great value in cases of danger from profuse hæmorrhage, there can be no dispute. All surgical procedures, to be much practiced, must be simple, and the means of their execution, easy of attainment. The exigencies of the cases are great and sudden; and it is obvious that most of those that might be benefited are just such as can not be reached in time, when complicated apparatus is to be prepared. If possible, we should be able to extemporize a procedure that can be applied in the solitary cabin of the pioneer as well as in the heart of a great city. Is there any way that will obviate these difficulties? Can any simple surgical device be placed at the command of common intelligence and ordinary skill?

The history of transfusion of blood is a thrice-told tale and has reappeared through the pages of our journals within the last few years. The historians even go back to Ovid's "Metamorphoses" and find in his poetic fancy the glimmer of scientific truth. Priority in discovery is ever a source of difficulty among the practitioners of our art. Through English channels we are taught that, in 1657, Sir Christopher Wren, having made some experiments with reference to transfusion of fluids into the veins of dogs, suggested the possibility of the operation on the human subject, in a communication which he made to the Royal Society of London in the same year. But at this time the culture of Italian physicians occupied the front place in the world, and Francesca Folli da Popi first made a decisive advance in the theory and practice of this branch of our art, in 1652. It was claimed by the friends of Folli that Wren had received direct information of his experiments and repeated them as original. But these experiments were all

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made on animals, and in England, twelve years later, in 1669, Drs. Lower and King instituted the first trial of transfusion of blood from an animal into the human subject on a man named Arthur Coyn. This was done by connecting the carotid artery of a lamb with the vein of the recipient by means of a silver tube. It was observed that the arterial impulse was conveyed to the vein in the arm of the man, and it was estimated that from nine to ten ounces of blood were transfused, and that no evil consequences ensued.

It is obvious that these experiments were the natural outcome of Harvey's great discovery, published in 1628; for before any attempt at transfusion was made, Dr. Wren, Professor of Astronomy at Oxford, proposed to Robert Boyle, founder of the Royal Society of London, to inject medicinal substances into the vein. This was done by Boyle, and he afterward published a pamphlet upon the utility of experimental philosophy. The method was taken up in France and Germany in the year 1656, receiving the name of infusing surgery; but all attempts to introduce venous blood into the veins of the recipient were total failures on account of its coagulation in the tubes. The way now seemed open in one direction, and at once the blood of animals of different species and genera was made to commingle. The blood of a puppy replaced some drawn from the veins of an old and decrepit dog. "The observers thought he carried himself with more spirit."

It must be admitted that the first successful transfusion performed on the human subject was by Denys, in the year 1666. His subject was a young person who had been treated on the most perfect Sangrado plan for the relief of a fever. He had been bled, made to vomit, and had been purged twenty-two times. The surface of the body was cold, the patient was pulseless, respiration was extremely rapid, and the mind delirious, when Denys proposed transfusion, which quickly revived the patient, and complete recovery followed. But I shall not take up your time with such histories. It is not to be supposed that such an extraordinary movement in surgery would fail to have its enemies. The enthusiastic reformer would be sure to be opposed by the persistent conservative. While the advocates of the plan

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looked forward to great relief for humanity, its opponents denounced it as legalized murder. An unsuccessful case seemed to favor the croakings of the opponents. The acrimony of the controversy was so great, that the friends of Denys declared that the wife of the man upon whom the operation was performed had been hired to poison her husband in order that his enemies might attribute the death to transfusion. Those high in authority in France were interested spectators of the new practice; and at this stage the whole matter was laid at rest by a prohibitory order known as the Edict of Chatelet. With the English, however, no such fatal experience checked inquiries upon this subject; but the French failure seemed to have acted as a restraint, and the first period during which the medical profession were much interested in this question lasted three years. After the year 1668, interest in the question of transfusion seems to have almost entirely disappeared. Still, we find Kaufmann and Godefroy successfully practicing transfusion of blood from a lamb into an anæmic subject. We again hear of it in 1714, and still again, in 1749. The third and truly scientific period belongs to this century and, indeed, is confined to the last sixty-five years. In 1819, Blundell practiced transfusion upon a man forty years of age who was suffering from cancer of the pylorus. He injected fourteen ounces of human blood. The sick man appeared to be better for a while, but he died (the writer naïvely says, he ought to die of his cancer) some days afterward. But I do not propose to cite such cases, and I have merely mentioned the few already given for the purpose of sketching the beginning of what has now become a great movement in surgery. After Blundell came Milne-Edwards, Prevost and Dumas, Bichat, Nysten, Larrey, Magendie, and from them a long line to the present time. Some of the experiments are not very clearly stated, but down to this time (1819) the transfusion seems to have been of arterial blood into the veins, following the experience of Lower. Since this period, every possible variety of transfer of blood has been made. We have, in the first place, arterial blood conducted into the vein. Then, we have venous blood carried into the vein. Next, venous blood into an artery

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and arterial blood into an artery. Last, we have defibrinated blood injected into a vein and the same into an artery. The blood of different species and different genera, as well as of different classes, has been mingled. The blood of birds has been injected into the vessels of quadrupeds and the blood of quadrupeds into the vessels of birds, that of cold-blooded animals into those of warm, and that of warm into those of cold. The blood of the fish and the reptile has been exchanged for that of the sheep and the dog. As was suspected, the experiments proved that the blood of those nearest of kin could be made most readily to mingle. Indeed, those that were remote, as the bird and the quadruped, the cold and the warm-blooded animal, acted reciprocally as poisons. The original success of Lower seems to have been the key-note to success in nearly all the cases down to the time of Blundell. And, indeed, it is hardly possible to conceive of a more beautiful means of conducting the blood into the vessels of the recipient, than the action of the heart propelling it from an artery. The experiment has become classical. It is one of the things that takes its place in the anatomical theatre for yearly illustration. It not only shows how readily the blood of one animal can supply the place of the blood drawn from another, when of the same species, but it also shows that, after the respiratory function has ceased, the heart of another animal can so distribute its blood through the empty vessels that its presence is capable of re-establishing the function of nerve-centers. Very much less blood than that which has been drawn seems to be sufficient to restore the functions. It is, indeed, astounding to see a dog, which has been bled *ad deliquium* so completely that respiration has ceased and could never return but for the interference of transfusion, so entirely recover as to be able and willing to quarrel with his donor for a bone, in the course of a few hours. The transfusions from the lamb to man have been conducted on this principle and have been more or less successful down to the present time. The most ardent supporter of this method is Dr. Franz Gesellius, of St. Petersburg, who published in 1873 an admirable *résumé* of the whole subject. Notwithstanding these successes, it is not to be

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believed that the blood of different species can be so readily and usefully commingled as that of the same. This hardly needs argument; and the many experiments in this direction have only confirmed natural expectation. But we can not expect to obtain arterial blood from the human subject. We therefore look for some agency by which the venous blood of a donor can be harmlessly transferred to the vessels of the recipient. All the early experiments, however, to attain this result were eminent failures. The blood coagulated in the tubes. During the last few years, the ingenuity of surgeons has been taxed to produce an imitation of the heart, which, taking the venous blood directly or indirectly from the donor, could transfer it rapidly, easily, and gently to the veins of the recipient. Until 1818, the danger from the introduction of air was not recognized. Its fatal introduction into the heart, and its instantaneous destruction of life, the result of accident during operative procedure on the neck, is a matter of surgical notoriety, which has unfortunately been known to occur many times since. This accident can be so readily repeated as an incident to an imperfect mechanical arrangement, that it is one against which every device is designed to specially guard. The danger of coagulated blood, even in minute quantities, would be known to exist in a more or less indefinite way at any time. But the subject of thrombosis and embolism has received its special investigations far more recently than the discovery of the danger from ingress of air; and these are dangers which, in consequence of the light that has been thrown upon them in recent times, would induce the operator to avoid clots of even a microscopic character. I can not, however, believe that life is lost from minute and subdivided quantities of air. This we have on the great authority of Claude Bernard; and direct experiment seems to have settled the correctness of this statement. It is not improbable, also, that minute coagula may be dissolved and disposed of through the emunctories. Still, no prudent surgeon will ever run the risk of either of these accidents. The fear of coagula has induced the resort to defibrinated blood, and, inasmuch as the red corpuscles appear to be the important elements, both for

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stimulating nerve-centers in the case of hæmorrhage and for removing the anæmic condition, it has been thought that blood from which the fibrin had been removed was well adapted for these purposes. Is blood that has been defibrinated truly blood, asks Gesellius. To defibrinate blood, it is necessary that while it is coagulating it should be thoroughly whipped with twigs, or, if it be desired to be very nice about the operation, with a glass brush, during a period of several minutes. It must then be strained through a thoroughly clean and closely-woven linen cloth which has been previously moistened. At this time can it be considered as blood? Upon microscopical examination, Gesellius discovers that, even in the defibrinated blood, the corpuscles have arranged themselves in *rouleaux*. Still, there are many cases of successful and beneficial introduction of defibrinated blood; but it must also be recollected that medicated fluids have been freely introduced into the circulation without fatal results, and saline solutions, indeed, with benefit.

In order to retain the fluidity of blood in its entirety, J. Braxton Hicks, in 1868, proposed to incorporate phosphate of soda, used in a solution of three grains to a pint of water, which was mixed with blood in the proportion of one part of water to three of blood. He made some successes in the lower animals, but he failed in all six of his cases in the human subject.

The profession naturally comes back always to the belief that the blood in its entirety is to be desired. Still, there are many advocates of the method of defibrinization. Perhaps one of the most successful operators by this method is Dr. Thomas G. Morton, who has used it with great success in several cases and has devised a very complete apparatus for preserving the blood free from foreign matters and for maintaining it at a proper and equable temperature. The greater facility of performing the operation of transfusion after defibrinization, as compared with the use of entire blood, has induced its advocates to insist upon its likelihood of producing a better average of results. There is, as they say, no danger from the formation of clots or from the introduction of air. There is no hurry, and hence there is greater accuracy in the operation. Moreover, the quantity of blood

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injected can be carefully measured. It may, however, be readily doubted whether minute coagula, still sufficient for capillary infarctions, may not escape through the filter. The formation of *rouleaux*, which occurs in defibrinated blood, shows that change has already begun, which proves diminished vitality.

Marmonier, in his work upon this subject, has collected thirty-four observations where defibrinated blood has been employed. The results were twenty-two deaths, being a mortality of about two in three. In one hundred and thirteen cases where the whole blood was transfused, there were thirty-four deaths, being a mortality of about one in three. Such statistics must have great weight. Still, it must be confessed that we have no long list of cases applying to special diseases, so that our statistics, being made up of transfusion employed in patients afflicted with every variety of disease, are very unsatisfactory. The arguments raised in favor of defibrinated blood, which have already been mentioned, are supplemented with the asseveration that the removal of the fibrin is of but little consequence, for the reason that the chief function of the blood is to be found in the corpuscles as oxygen-carriers, and the very stirring of the blood in the process of whipping promotes its oxygenation. This certainly is the use of theory beyond warrant. There is no doubt that the mere distention of the blood-vessels with a properly regulated saline solution will produce marvelous results. This has been seen many times in patients in collapse from cholera. This I have witnessed, with amazement at the temporary result. I may, therefore, readily accept the statements of those who have obtained good effects from the use of defibrinated blood.

The point of time at which we must finish the operation when transfusing the entire blood, so as to be entirely secure from danger, either from coagula or the movement in the blood towards coagulation, remains to this day an undetermined question. This is a point difficult to determine, for coagulation takes place in a very short time, and when it has occurred the blood is surely unfit to perform its functions, even if it can be tolerated. We must also recognize the fact that there is a period

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of transition from the condition which is perfectly normal to that of coagulated blood. This process is analogous to that of dying. It is difficult, and perhaps impossible, to know when the moribund condition (if I may use such a metaphor) begins. To be entirely safe on this point, we must make the period of transfusion short and definite. We are, however, met with another difficulty in carrying out this indication; for the injection must not be too rapid or too forcible, in order to avoid the production of local congestions, especially in the lungs, and an overwhelming nervous disturbance. To accomplish these various ends, a great deal of ingenuity has been exerted; but it is not my purpose to give a detailed description of these various devices. Suffice it to say that the syringe plays an important *rôle* in most of them. Now, unless the syringe be held perpendicularly over the recipient, which is not a difficult thing to do, there is constant danger of injecting air. Even with this precaution, unless the syringe be of glass, or have a glass tube in the line of blood-flow, we may commit this dangerous error. The instrument that we have seen so frequently delineated in medical journals as the invention of Dr. Aveling seems to be one of those most secure against this danger. But this instrument may be specially criticised upon the point of danger to the donor by having a needle thrust into his vein and there retained during the time of the operation. Moreover, there are difficulties arising from the length of time required to complete the operation, in the production of coagula upon the sides of the tube, which might become detached in the flow. One of the dangers which results from the introduction of a canula into the veins of the recipient has been happily overcome by Moncoq, in the invention of his mandril, as he calls it, which is retained in the canula until the moment of transfusion. The introduction of a tube rounded at the end, with an opening at the side as in a catheter, has the objection that the blood of the recipient will flow into it and there coagulate during the time of the manipulation antecedent to the transfusion. This has been guarded against, it is true, by filling the tube with water before its introduction into the vein; and this

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method has been employed by Professor Nussbaum, and, as he informs me, thus far in his operations without accident. The mandril of Moncoq is simply a solid piece of metal carried through the canula, filling it like the stylet of a trocar, but barely protruding beyond the end, and smoothly rounded. This prevents all coagulation. No form of canula can be considered perfect that is not provided with this addition. I have nowhere seen a statement of the exact time beyond which the operator should regard the continuance of the injection as dangerous. There can be no doubt that the rapidity of coagulation of blood differs in different persons, and also in the same person at different times; but most operators will continue the injection slowly for a period of two or three minutes, for fear of inducing too violent a shock. Human blood will coagulate in this space of time, and, although the first step in this coagulation will begin in the blood that has come in contact with the walls of the instrument, and there, if coagulated, remain adherent, thus allowing the fresh and more vital blood to pass along the center, as in Aveling's instrument, particles of this coagulum may be detached and carried along. It seems to me, therefore, that a rule must be laid down absolutely, that the operation is to be completed by the termination of a specified time. If this time be short, the amount to be injected must be small, in order to avoid the violent impression of a rapid incursion of fresh blood into the veins of the recipient.

At this point permit me to give a description of an apparatus of my own devising, which I believe may be so used as to fulfill all the indications required. It consists of a canula of peculiar construction provided with Moncoq's mandril. This, after being placed in the vein of the recipient, can be allowed to remain a long time without danger of the formation of coagula, because its rounded end prevents the retention of any portion of blood separated from the general circulation. The blood enters through the side of the canula, and, when the moment for its passage has arrived, the mandril is withdrawn. When the moment for the arrest of its passage has come, the mandril can be thrust forward, thus cutting off at once the passage of blood

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which has been retained in the instrument beyond the allotted time. The canula, therefore, completely controls the flow of blood from the beginning to the end. This is a modification of Moncoq's canula. The injection of blood can be made by any apparatus connected with the lateral tube; but I have preferred the use of a simple rubber sac which, being secured to it by a ligature, can be easily removed and thoroughly cleansed. A syringe is always open to the objection that the packing must be lubricated for its proper movement and security against the ingress of air. Its walls, therefore, must be contaminated by foreign particles. Rubber, on the other hand, can be made as clean as is possible in any mechanical device. If an open sac be used, it must be held perpendicularly in order to prevent the blood from spilling at the moment that it is caught. The sac can be folded upon itself and rolled up, thus using all the force that is necessary for the injection of the blood, and yet its elasticity will prevent undue violence. But, perhaps, for the better understanding of the instrument, I should describe the whole process in order that its fitness may be fully appreciated. The difficult problem of transfusion has always been the transference of venous blood. The old experiment of using the artery of the donor, though perhaps the best possible method of transference, is clearly impracticable. The donor should certainly be subjected to the least possible risk, and he can furnish the blood by its withdrawal after the well-understood practice of phlebotomy, with this minimum of danger. The prick and the retention of Aveling's needle is therefore an objection to its use. But, before receiving the blood, the canula, with its mandril in place, must be introduced into the vein of the recipient, the median cephalic vein being usually preferred. Even this, however, is a manipulation not always entirely easy. I find, after ligating the arm of the recipient, so as to procure what distention of the vein we may, that raising the skin at right angles to the vein, after the fashion of the hernia nip, and thrusting a sharp-pointed bistoury through its double fold with its back toward the vein, we get a better uncovering of the vessel than by an ordinary dissection. A common cambric sewing-needle, using the blunt

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end, furnishes a convenient instrument for raising the vein from its bed in the connective tissue. This should be allowed to remain in place until the canula is fairly introduced through a longitudinal slit in the vessel. The ligature is now removed from the arm and tied loosely around the canula to secure its retention during further manipulation. The recipient will, as a matter of course, be in the recumbent posture, his arm, we shall say the right one, being carried out at right angles to the body, or nearly so. His hand will be grasped by the right hand of the donor, while the latter will bare his left arm for furnishing the blood. This he will hold parallel to and above that of the recipient, so that the blood will fall naturally and easily into a funnel above the rubber sac. This position places the donor and the recipient *en rapport* with each other in a very natural and easy manner. It is an old maxim in surgery that an operation that is well done is done soon enough; and we certainly, since the days of anæsthesia, have seemed to have laid aside entirely, and very properly too, the rapid sweeps of the so-called brilliant execution of surgical operations which the writhing subject seemed to demand. But this must be an operation against time, and yet it must be conducted with such moderation as to avoid the dangers already described. It becomes, therefore, necessary that the blood should be drawn quickly, and, as the quantity is necessarily small, but a few seconds is all that we require in order to obtain it. In the phlebotomy of the donor it is wise to observe the old rule of uncovering the vein before its puncture. We thus secure a quick flow and avoid thrombus. Everything now being ready, the surgeon, standing behind the patient, draws the blood into the sac, having immediately before withdrawn the mandril. The moment enough blood is obtained, the arm of the donor is bent out of the way, the sac is folded on its top, and, as it is rolled up, the blood is carried forward. All this must be regulated, as regards the time employed, by an assistant, who holds a watch, and who calls it off every ten seconds from the moment the vein of the donor is punctured. At the end of fifty or sixty seconds, the mandril must be thrust forward, thus cutting off further flow from the sac. In so short a time as this, there

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should not be carried in more than two or three ounces, and in most cases this quantity is sufficient. If, however, in consequence of extraordinary and sudden loss of blood, more should be required, the removal of the sac and its careful cleansing, and clearing the lateral canula, render the apparatus fit for use without the removal of the canula from the vein. All this will require but a few minutes of time, no more than would be wise in order to avoid the danger of too much rapidity in the introduction of the blood. The same principle can be carried out by an extemporized apparatus. A quill can be used as a canula, a mandril can be made of smooth-polished wood running up through the center of the sac, the sac itself can be made from the cæcum of a sheep, or a bladder turned inside out, using the peritoneal surface. Thus the dweller in rural districts need never be in want of apparatus on occasions of sudden and fearful emergency. His ingenuity will be but slightly taxed if he understand the principles of the method. I have made the operation upon the dog by these extemporized means with entire ease and success.

I arrived at the conclusions with reference to the safety of the method suggested, both as regards the manipulation and the period of time allowed, by experiments upon dogs; for the dog's blood is known to coagulate more rapidly than human blood, and, as near as can be ascertained, in the relation of two to three. No dog, of several that were experimented upon, suffered the slightest injury, although the animals would show a shock somewhat similar to that which is usually exhibited when transfusion is made in the human subject, except in those transfused immediately after great loss of blood from sudden hæmorrhage.

I do not believe that our information is yet sufficiently accurate to determine precisely the character of cases that may be benefited by transfusion of blood. By common consent, the operation of transfusion is regarded as beneficial immediately after the loss of blood, and also in the anæmia which follows its loss, after considerable intervals of time. It also is probably useful in anæmic conditions following exhaustive discharges where the cause of these conditions has been removed. But

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we have yet to learn that any considerable benefit is to be expected in cases where the decline of the powers of life is incident to some fixed cause, as tubercle or cancer. It may also be doubted whether it can in any way improve the condition of prostration in any form of fever, such as that of typhoid or an exanthem, unless special depression should arise from sudden hæmorrhage. Large hopes were entertained at one time of the prolongation of life by this method, in phthisis pulmonalis; but its most ardent advocates have ceased to practice it. I do not propose to detail any considerable number of cases, either of my own or of others; and I do not think, as I have before said, that we have cases enough for statistics of much value; but I shall narrate a single case in the service of Professor Behier, of the Hôtel Dieu, reported a few years since in the "Revue Scientifique," which presents symptoms that may be regarded as typical in cases of transfusion other than those practiced immediately after the loss of blood. The case is one of such interest, illustrating some new points upon the general subject, that I have thought it best to make a short abstract of it:

The patient, a female, twenty-one years of age, entered the Hôtel Dieu on the 24th of January, 1874. She had given birth to a child six months before, which she continued to nurse up to the time of admission. On the 12th of January, without any known cause, she was seized with a severe menorrhagia. On her entrance, twelve days afterward, her face and skin were blanched, the mucous membranes were without color, the pulse, soft, small, and 120 per minute, and the extremities were cold. The use of perchloride of iron and the horizontal position, accompanied with a tampon, diminished the hæmorrhage, but it reappeared on the 26th, pulse being 132. On the 29th of January, at 10 o'clock, transfusion was made with the apparatus of Moncoq-Mathieu. Eighty grammes of blood, or about three ounces, were introduced. The operation lasted about three minutes. Immediately after the operation, the face preserved its pale aspect but seemed bloated. Respiration was painful and sighing. She became restless, with slight delirium, expressed great alarm, and said she thought she was about to die. The excitement kept on increasing, with dyspnœa and

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cries of pain. In one hour and five minutes after, her cries became still stronger. She complained that her feet were swelling. She displayed more strength, but the crisis through which she was passing was very remarkable. In one hour and ten minutes from the time of transfusion, she was able to raise her head and drank without any difficulty some wine and water, which she retained. The pulse remained imperceptible at the radials. Ten minutes later, the jactitation continued. It seemed to her that the feet were swelling up to the abdomen. The respiration became rapid and panting, recalling that of asphyxia. The face wore a haggard aspect and was slightly cyanosed. These phenomena continued till one o'clock, when a change for the better rapidly developed. The hands became warm, the pulse reappeared with sufficient strength, and the patient declared herself much better. At two o'clock, the strange and haggard expression had disappeared, the face had acquired a slight color, the delirium and jactitation were gone, and the voice was clear and perfectly distinct. At four o'clock, the pulse was strong and resisting; and the patient had been able to take almost a bottle of old wine and some soup, which were retained. She heard, could speak without fatigue, and the headache entirely disappeared. The sanguinolent discharge from the uterus was absent from the moment of transfusion. Two days afterward, it was difficult to persuade her to keep the horizontal position. On the third day, there was marked fever, but the appetite was not diminished. On the fourth day, the fever had subsided, the digestion was perfect, and the appetite insatiable.

We have, in addition to these statements, a measure of the blood-corpuscles before and after transfusion, which throws light upon the cause of the great improvement following the introduction of such apparently insignificant quantities of blood. The estimates were made after the method of Malassez, and the blood of the patient was found to contain 850,000 red corpuscles in a cubic millimetre, which corresponds to 1·6 minim. On the same day, at two o'clock, four hours after the operation, there were 1,110,000 corpuscles. At six o'clock, eight hours after the operation, there were 1,143,900 corpuscles. M. Liouville, who examined the blood with a microscope, observed at

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this moment a great number of red corpuscles, small but well formed, which did not exist before the transfusion. On the 13th of February, fifteen days after, the number of corpuscles in a cubic millimetre was 1,850,000. On the 4th of March, thirty-four days after, there were 2,029,500.

The following is a case in my own experience:

Mrs. A. Dunn, aged forty, had a miscarriage February 25, 1875. This was the third instance of miscarriage occurring at about the same period of gestation. The hæmorrhage was large and the exhaustion was great. During the first week, the pulse was very feeble and frequent, ranging between 120 and 130 per minute. At the end of four weeks, being much better, suddenly, while the patient was sitting at stool, there was profuse hæmorrhage. This left her in a very low state, with a pulse of 120 per minute during most of the time. After sleep it would occasionally drop to 110. She was obliged to keep the recumbent posture constantly. April 12th, nearly seven weeks after the miscarriage, I found her very anæmic and unable to raise her head. Transfusion was made by drawing blood from the vein of a healthy young man immediately into a rubber sac attached to Moncoq's canula, with a mandril having a long handle passing up through the sac. In order to keep the sac perpendicular so as to retain the blood, it was necessary to elevate the arm. This was found to be an awkward position, and I succeeded in introducing but a single ounce of blood. This operation was performed by removing the mandril then seizing the sides of the sac below the blood level and rolling it upon itself, thus driving the blood into the vein. The time occupied in receiving the blood was seventeen seconds, and in injecting, twenty-three seconds, the whole time being forty seconds. No disagreeable symptoms and no marked sensations followed the operation. Indeed, I regarded it as a failure. The next day, however, she was able to raise her head and she sat up. The pulse, which had never dropped below 108 and was seldom so low, went to 98 in an hour after the operation. During the suceeeding week, the pulse never rose above 108 and was generally at 90. The patient sat up several hours every day. In one week after, transfusion was renewed, using the opposite arm and placing the canula in the median basilic vein. Precisely

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the same method was followed as in the first operation. The donor of the blood was the same person as before, and the stream furnished was not large, so that the time consumed in obtaining it was twenty-seven seconds, and but an ounce and a half was transfused. This was injected in seventeen seconds, the entire operation occupying forty-four seconds. No unpleasant symptoms followed. During the interval between the two operations, the patient, while sitting up, complained of a constant pain extending the whole length of the spine. The day after the second operation, this wholly disappeared, and convalescence was rapid.

I add another case, which illustrates the benefit of transfusion where the exhaustion was incident to a temporary trouble, and where the operation was apparently the immediate cause of improvement:

Annie Miller, aged twenty-three years, was confined March 23, 1875. She seemed well for a few days, but then began to exhibit sickness, having a fever with anorexia. Her pulse became small, ranging from 100 to 120 per minute. She continued in this state for about two weeks. Under the influence of quinine, she seemed to improve for a few days, but soon grew worse, with increase of fever and with diarrhœa. Transfusion was made after the manner described in the former case, but using my canula. An ounce and a half of blood was drawn in twenty seconds. Before injecting was fairly begun, in adjusting the sac, nine seconds were consumed. The injecting process was completed in thirteen seconds. The total time of the operation was forty-two seconds. A slight rigor came on in about half an hour. This was followed by a sense of heat and respiratory effort. The next day a marked improvement was apparent. A physician who was in the habit of seeing her and had visited her the day before the operation, came to see her the next day. Not being aware of the transfusion he expressed himself surprised at the change for the better and inquired if there had been any alteration in the treatment or regimen. The pulse had dropped to 84 per minute. There had been no change in any respect in the management of the case, with the exception of the transfusion of the ounce and a half of blood. The recovery was rapid.

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I add still another case, in which the benefit was temporary only, and the anæmia was not due either to hæmorrhage or to exhaustive discharges:

Mrs. McVean was a marked subject of chronic anæmia. She was pale and sallow, and had been deteriorating in health for several years, suffering much from dysmenorrhœa, and latterly from amenorrhœa. For about two months, she had marked symptoms of locomotor ataxia, rendering walking difficult and uncertain. I saw her in consultation and suggested the possibility that these symptoms were hysteroid mimicry; but the diagnosis was left in doubt. The round of tonics had been employed, and transfusion was decided upon and performed April 26, 1875.

The donor was the husband, a stout young farmer. In my previous operations, the bleeding had been carelessly done. The proper method of first exposing the vein had been omitted, but on this occasion I determined to introduce a larger amount of blood and extend the time of the operation to fifty seconds. The canula with the sac attached was introduced into the median cephalic vein of the right arm. A full stream of blood was obtained, and in seventeen seconds the sac was full. A few seconds were consumed in making the roll, and the whole was thrown in in thirty seconds, making the whole time of the operation, from the moment of drawing the blood to the closure of the canula, fifty-three seconds. The difference between the blood of the donor and that of the recipient was extreme. Hers seemed more like bloody serum than genuine blood, while his seemed unusually dark by contrast. Almost immediately, striking and alarming symptoms supervened. The face, which had been pale and sallow, suddenly became purple. The lips were dark; and, indeed, the cyanosis was extreme. She complained of distress in the thorax, a sensation of stricture, and a general "bad feeling." There was the slightest trace of a convulsion with momentary loss of consciousness. The pulse at the wrist disappeared; but the respiration continued, and, except for a few moments, was not much disturbed. The voice was natural in its force. The unpleasant symptoms gradually abated, and in about ten minutes the pulse could be counted, and the purple hue gradually faded away. About an ounce of whisky had been swallowed in teaspoonful

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doses. In about half an hour, a decided chill supervened. This was followed by a sense of heat, and, at the expiration of an hour and forty-five minutes from the time of transfusion, she broke out into a profuse perspiration.

The patient was much benefited for a fortnight or more, but she then began to decline. The alarm that was felt at the time of transfusion was so great as to prevent the patient from submitting to its repetition, in view of the fact that the improvement was not permanent. She gradually grew worse and died about six weeks afterward.

An attempt to treat of the general subject of the surgery of transfusion in a paper like this would be idle. A great deal was known with reference to the tolerance by the blood of solutions introduced into the vessels, two hundred years ago. As I have said before, experiments on a large scale have been made on the commingling of blood from animals of different species and genera, and of that of warm and cold-blooded animals. The result justified the anticipation that the nearer of kin tolerated this commingling better than the more remote. I have, therefore, had nothing to say with reference to the use of lamb's blood for transfusing the human subject, which was employed so much a few years since; nor have I thought it wise to consider the question of the transfusion of milk, which has received such a very admirable treatment in this city by Drs. Howe and Thomas. I have assumed that, if it could be accomplished, the transference of venous blood to a vein in its entirety is the thing to be desired. Defibrinated blood is not blood; and no physiology can give us a complete statement of the uses of entire blood in the functions of life. I merely desire to add a thought, perhaps a trifling one, to the general stock of knowledge upon this subject; and hope I have been able to state it with such a degree of accuracy and simplicity as to place it within the reach of any surgeon, at any time, and in any place. More perfect apparatus than mine can be made, but surely none more simple.

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DISCUSSION.

DR. M. W. TOWNSEND, of Genesee County, referring to the last case mentioned in the address, confirmed the author's statements with regard to the effects of the procedure. The patient had been confined to her bed and was unable to raise her head. For several weeks after the transfusion, she was able to sit up more or less, but she did not eventually recover.

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A NEW APPARATUS FOR TRANSFUSION, WITH REMARKS ON THE INTRA-VASCULAR INJECTION OF BLOOD AND OTHER FLUIDS.

By Joseph C. Hutchison, M. D., of Kings County.

Read November 18, 1884.

Notwithstanding that the operation of transfusion of blood has been practiced for more than five hundred years, and that many brilliant illustrations of its value in saving human life have been noted, it must be reluctantly admitted that it has not fulfilled its early promise and is now resorted to much less frequently than formerly. Within a few months, however, the prevalence of cholera abroad, and the expectation that it will soon revisit this country, have invested the subject of transfusion of blood and other fluids with new interest, especially since many reports of success have been recently recorded in Europe and America.

The writer has for a long time believed that transfusion would be more frequently practiced and take a higher rank as a therapeutic expedient, if the measures for performing the operation were simplified, its dangers diminished, and a proper and easily obtainable fluid could be found for the purpose.

The object of this paper is to consider these requirements.

Description of the Apparatus.—The apparatus which I now exhibit consists of a cylindrical glass receiver graduated in cubic inches, with a capacity of twelve ounces. It may be made larger if desirable. A metal cap, containing a perforated female screw, is attached to its lower end, having a perforated, nipple-

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shaped termination, to which a rubber tube four feet long is connected, in order to convey the liquid from the receiver to the canula which enters the blood-vessel. The mouth of the receiver is closed by a rubber stopper, which prevents the escape of heat, and is perforated in the center to admit a thermometer, which fits the opening tightly. When not in use, the thermometer is pushed well down into the receiver, to prevent it from being broken in handling. The canula has a nipple-shaped end which is to be slipped into the distal end of the rubber tube and is furnished with a stop-cock.

The receiver is surrounded by a double jacket of India-rubber, the walls of which are separated by a half-inch space for holding hot water. The water is introduced into the jacket through a tube projecting from the top, fitted with a nipple-end stop-cock. An opening at the top of the jacket admits the receiver, and a smaller one at the bottom allows the metal cap to protrude. It has a narrow opening extending two thirds of its length, to allow the operator to see the graduated marks on the receiver, and also a loop on the top for suspending the apparatus when in use.

METHOD OF USING THE APPARATUS.—Drop the end of the rubber tube, to which the male screw belonging to the lower end of the receiver has been attached, into a vessel of hot water

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(150° to 200° F.) placed three or four feet above the patient, and attach the other end of the tube to the stop-cock at the top of the jacket, the receiver having been previously put inside the jacket, because it can not be introduced after the jacket has been filled. Now compress the jacket with the hands to expel the air, which will be seen to rise in bubbles through the water; then remove the compression, and, placing the jacket lower than the surface of the water, a siphon is established, which fills it almost immediately. The jacket, when distended, holds ten ounces, and it hugs the receiver closely, so that no air can get between them, which would prevent the heat from being imparted to the receiver. This method of filling the jacket is most convenient and rapid, and a larger amount of water can in this way be introduced than by pouring it into the opening at the top. In the box containing the apparatus, are three or four bottles filled with the salts which are to be injected, mixed in due proportion, ready for solution, with the formula on the labels.

The rubber tube is now detached from the stop-cock at the top of the jacket and is attached to the canula; and the other end of the tube is connected with the lower end of the receiver. The apparatus is warmed by filling it with hot water, which is allowed to run off before it is filled with the fluid which is to be injected. The receiver is then closed with the rubber stopper carrying the thermometer, and the apparatus is suspended, or held by an assistant, three or four feet above the vein which is to be opened.

The vein is exposed by lifting a fold of skin transversely across it and dividing it with scissors or a bistoury, making the incision about three-fourths of an inch long. A probe is carried behind the vein, which is then picked up with forceps and opened, by a V-incision, with a delicate pair of scissors. Before doing this, the stop-cock of the canula should be opened and a small quantity of fluid allowed to escape, for the purpose of carrying off the bubbles of air which may have adhered to the walls of the tube. The rapidity with which the fluid is introduced can be regulated by the stop-cock in the canula. After

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the canula is introduced, it is fixed in position by the finger laid over the opening in the vein. No ligature is necessary to retain it in position.

A vein at the bend of the arm is usually selected for the operation, a bandage having been previously applied above the elbow, as in phlebotomy, to distend the vessel; but, when there is difficulty in finding a vein in this situation, a saphena near the outer ankle may be selected, or the fluid may be introduced into the radial artery, as was recommended by Hüter and has recently been practiced by Halsted.[1] The central end of the artery should be selected.

A number of appliances have been devised for the purpose of simplifying the operation of transfusion and for preventing the entrance of air into the blood-vessels; but these results can be best obtained by a simple apparatus constructed on the principle of the one I have exhibited. If the operation be managed with ordinary care, it is impossible for air to enter the vein. The special advantage which this apparatus has is in the hot-water jacket. It is a convenient expedient for preventing the fluid to be transfused from becoming cooled, during the operation, below the temperature of the blood. It is important that the injected liquid should not enter the blood at a temperature below 98·5° F., and there is no objection to a temperature of 105° F. The temperature can be accurately ascertained by the thermometer.

Transfusion of Blood.—It was believed until recently that the reviving power of blood resided in the corpuscles; and that transfusion, when performed with the serum alone or with any other fluid, would prove fruitless. Recently, however, Ott and other observers have demonstrated, by repeated experiments on the lower animals, that the corpuscles of transfused blood, pure or defibrinated, are short-lived and are rapidly excreted; that the blood-corpuscle is not the important element; that the indication is to restore activity to the circulation by restoring the bulk of the vital fluid so as to enable the organs, especially the heart

[1] Halsted, "Refusion in Carbonic-Oxide Poisoning." "New York Med. Jour.," vol. xxxviii, p. 125.

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and brain, to perform their functions duly; and that, for these and other reasons, blood is not so good as saline solutions for transfusion in acute anæmia. Other objections are, the difficulty of obtaining blood at a moment's notice; the danger that minute masses of fibrin, even when defibrinated blood is used, may obstruct the vessels of the brain, lungs, and liver, and cause fatal disorders; the difficulties attending the operation; and the liability of the donor to faint and thus arrest the operation and also to suffer from phlebitis or other serious consequences. These considerations have prevented the frequent use of the operation, although the indications for it are by no means rare. In the only case in which I have practiced blood-transfusion (Aveling's method being used), the donor, a house physician, fainted, the flow of blood was arrested, and the operation was suspended. He developed phlegmonous inflammation and septicæmia and narrowly escaped with his life. During the operation, air entered the vein of the recipient, but no unfavorable symptoms resulted.[1]

Transfusion of the Blood of the Lower Animals.—Blood of the inferior animals, whose corpuscles are not larger than those of man, has been for a long time used for transfusion when human blood was not available; and several successful cases have been reported. It is said to be free from any special danger to a healthy human life, and that the blood is more easily obtained than that of man. The exact contrary would be nearer the truth; for in cities lambs and calves are much fewer than men.

Hasse and Ponfick have found, by experiments on the lower animals, that this operation is not infrequently followed by acute nephritis, suppression of urine, hæmaturia, and uræmic symptoms which, when severe, terminate fatally.

Post-mortem examinations showed that "both kidneys are always greatly swollen; large portions of the straight and convoluted tubuli are found blocked up by granular and blood-stained casts, a variable number of which may be detected in the scanty

[1] Reported in the "Med. and Surg. Reporter," Philadelphia, March 15, 1879, by A. T. Bristow, M. D.

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and sanguinolent urine." The appearances and the antecedent symptoms lead to the conclusion that transfusion of blood from an animal of a different species will often imperil life, if it do not lead to a fatal issue.

Ponfick also made the interesting observation that blood taken from an animal of the same species is not followed by grave symptoms; but that the globules of the donor rapidly undergoes dissolution in the serum of the individual receiving them, whether man or animal.

Transfusion of Milk.—The intra-venous injection of milk was first suggested by Dr. E. M. Hoader, of Toronto, Canada, in 1850. He employed it in three cases in the collapsed stage of epidemic cholera. One patient died and two recovered. The operation was revived in 1873 by Dr. J. W. Howe, of New York, who injected milk into the veins of seven dogs. All the animals died promptly;[1] and he concludes that the milk killed them. He also injected two patients, both of whom died. Professor T. G. Thomas thinks that these deaths occurred because the milk was not fresh. Dr. Thomas has reported seven cases of intra-venous injection of milk, with four complete recoveries[2] and several successful cases have been reported by Dr. Brinton and Dr. Hunter, of Philadelphia.

I have practiced intra-venous injections of milk three times, with one recovery. The operation was performed upon one patient twice. This case was one of pernicious anæmia in a laboring man of large physique. It was the same case, already referred to, in which I attempted immediate transfusion of blood with Aveling's apparatus, but failed on account of syncope of the donor. One week after, five ounces of milk, fresh from the cow, were introduced into the median cephalic vein, by means of a funnel and rubber tube. I did not see the patient again until three weeks after the operation. His appetite had re-

[1] Howe, "Transfusion of Milk *versus* Transfusion of Blood." "Med. Record," New York, vol. xiv, p. 443.

[2] Thomas, "Intra-venous Injection of Milk as a Substitute for Transfusion of Blood, with Cases." "New York Med. Journal," May, 1878, vol. xiii, p. 337.

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turned, his pulse was quite full and strong, and his lips and face had considerable color. His appearance had so much improved that at first I failed to recognize him.[1] Three months after, he entered the Brooklyn Hospital in the same anæmic condition as before the last operation. Five ounces of milk were again injected into a vein near the ankle, with Colin's apparatus. This operation did not improve his condition, and he died from exhaustion one week afterward.

Notwithstanding the excellent results that have sometimes followed the intra-venous injection of milk, the operation, it is said, is not free from danger; and it is stated by Laborde that, if animals do not die when milk is injected into the veins, it is because only a small quantity has been used, and even this may occasion serious accidents. The "Lancet" (Feb. 2, 1884) contains an editorial on the results of a series of experiments, reported by Dr. Migliopanzo in the "Archives italiennes de biologie," in which he injected milk into the veins of dogs. This observer concludes that milk must first be digested to be properly prepared for the blood. If injected without this precaution, it simply gives up its fat-globules and casein to the kidneys and passes out of the body by the urine. Milk in the blood in notable quantity, before it has undergone the digestive process, is unassimilable and hurtful, producing vomiting, diarrhœa, prostration, and ultimately death. The butyric element of the milk transfused without previous digestion produces chyluria and fatty infiltration of the kidneys. The sudden introduction of large quantities of milk into the circulation is followed by great diminution of blood-pressure, due to the collapse of the force of the cardiac systole; and, unless the milk be filtered to prevent corpuscles larger than those of the blood from entering, obstruction may occur in the pulmonary and cerebral circulation. Albertoni has proposed the injection of the serum of milk, and has actually injected from ninety to one hundred grammes into the veins of dogs without observing any ill effects. Casein introduced into the blood-vessels, after being digested, is transformed into urea rather than into food for the tissues.

[1] "Med. and Surg. Reporter," Philadelphia, March 15, 1879.

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From all this it is concluded that the fat and casein of milk transfused into the blood, before being digested, represent an unassimilable material which is discharged from the organism.

Saline Injections into the Veins.—The intra-venous injection of saline solutions was extensively practiced during the cholera epidemic of 1832–'33. More recently, this question has received considerable attention, especially by the Germans; and they have proved, by a number of experiments on animals bled to syncope, that life can be restored by injecting saline solutions into their veins, and that they are even to be preferred to blood for that purpose. Ott injected dogs with pure and defibrinated blood, blood-serum, and saline solutions, and found "that the danger from loss of blood, even to two-thirds of its whole volume, lies in the disturbed relationship between the caliber of the vessels and the quantity of blood contained therein, not in the diminished number of red blood-corpuscles; and that this danger concerns the volume of the injected fluids also, it being a matter of indifference whether they be albuminous or contain blood-corpuscles or not, so long as they are not directly injurious." He proves, further, that the hydræmia arising from saline solutions, though greater than that from blood-transfusion, persists for a shorter time; and that the regeneration of the blood-corpuscles, after transfusion of blood, requires more than double the time required after the saline injection. The soluble or corpuscular elements that may be introduced into the vascular system undergo disintegration and excretion; and, since these processes go on more slowly with all other fluids than with the salt-solution, it follows that the *restitutio in integrum*, after the injection of the salt-solution, takes place more quickly than after transfusion of blood. Since, moreover, there is no danger of the introduction of fibrin-ferment, the solution is easily prepared, and the technique of the operation is very simple, he recommends it instead of transfusion of blood in the human subject, in whom so great a loss of blood as two-thirds of its quantity is hardly to be observed.[1]

[1] W. T. Bull, "On the Intra-venous Injection of Saline Solutions as a Substitute for Transfusion of Blood." "Med. Record," New York, vol. xxv, p. 6.

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Schwarz has also proved, by a series of saline injections into the veins of animals bled to syncope, that the useful element in transfusion is not the blood-corpuscle, which is short-lived and rapidly excreted, but the re-establishment of vascular tension and the resulting energetic contractions of the heart. His observations led him to the conclusion that injections of saline solutions were preferable to blood-transfusion in acute anæmia. Schwarz's solution consists of chloride of sodium, ʒjss.; liq. sodæ, gtt. ij; distilled water, ℥xxxij, warmed to from 100° to 104° F.

Jennings, in his recent essay "On Transfusion," London, 1883, says: "The explanation of the success usually consequent on the intra-venous injection of fluid lies in this, that it is the dynamic, rather than the nutritive, value of transfusion which is serviceable in the class of cases under consideration; and, under conditions which have been indicated, and which embrace most of the instances where transfusion is called for, I unhesitatingly advise the intra-venous injection of fluid as being certain in its action, comparatively free from danger, and not requiring any special skill, if carried out in accordance with the directions which have been given. If, however, a few ounces of human blood can be safely and readily obtained (which is exceptional), it is obvious that the nutritive quality of the saline injection will be much enhanced by the admixture of the blood with it, particularly if that blood can be transfused by an immediate method; but this advantage is generally a secondary consideration, and it is only in some rare cases, such as carbolic-acid poisoning and some of the varieties of chronic anæmia, where, if transfusion be indicated, the transfusion of blood is indispensable." Jennings's solution consists of chloride of sodium, 50 grs.; chloride of potassium, 3 grs.; sulphate of sodium, 2½ grs.; carbonate of sodium, 2½ grs.; phosphate of sodium (Na_2PO_4), 2 grs., dissolved in 20 ounces of water at 100° F., with the addition of 2 drachms of absolute alcohol, to be injected by means of a siphon of rubber tubing.

Dr. W. T. Bull, of New York,[1] has tabulated nineteen cases

[1] *Loc. cit.*

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reported within three years, giving the essential details, in which intra-venous injections of saline solutions were used. Thirteen were cases of acute anæmia; three were cases of collapse from illuminating gas; and one was a case of collapse from iodoform poisoning.

Quite recently, Professor Mikulicz, of Cracow, in the case of a young man whose life was imperiled by loss of blood from a wound of the brachial artery, injected into the median basilic vein twenty ounces of a saline solution composed of one part of carbonate of sodium, six parts of common salt, and one thousand parts of distilled or twice-boiled water, warmed in a bottle to the temperature of 104° F. Dr. Fux, of Laibach, also records the case of a youth who was profoundly anæmic in consequence of repeated hæmorrhages from a wound in the hand, but was prepared for successful operation upon the injured member by an intra-venous injection of eight ounces and a half of a saline solution. I have not had the opportunity of reading the original reports of these cases, but they are given on the high authority of the Philadelphia "Medical News" for September 20, 1884.

My personal experience with saline injections is limited to its use in five cases of epidemic cholera in 1854. The good effects were temporary; but it should be stated that all these cases had been for some time in extreme collapse, moribund indeed, so that the value of the treatment was not fairly tested. I was, however, convinced that a treatment which produced such marvelous temporary effects, such as arousing the patient from profound lethargy, restoring the activity of the circulation as well as warmth and color to the skin, and re-establishing intelligence and speech, would yet prove of great value in such cases and in cases of acute anæmia from hæmorrhage.

There are many nice points connected with the operation which can only be settled by experiment; such as the best method of introducing the liquid, the proper composition, temperature, specific gravity, and quantity, and the rapidity with which it should be introduced. In two cases, I injected a fluid

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composed of common salt, ʒ iij, and alcohol, ʒ j, in one pint of water, of which two pints were introduced into the median basilic vein, at a temperature varying from 100° to 110° F. I repeated the operation when the algid symptoms reappeared. The following solution, recommended by Dr. Gull, in the "Reports on Epidemic Cholera to the Royal College of Physicians," London, 1854, was used in three cases:

Chloride of sodium.....	60	parts	by	weight;
Chloride of potassium.....	6	"	"	"
Phosphate of sodium.....	3	"	"	"
Carbonate of sodium.....	2·13	"	"	"

"By dissolving one hundred and forty grains of this salt in forty ounces of distilled water and filtering, we obtain a fluid having a decidedly saline taste, a faintly acid reaction, and nearly approximative in its composition to the fluid effused, minus the organic substances. These are small in amount, and their loss has apparently no important influence on the constitution of the blood."

To introduce the fluid into the veins, I used a glass funnel connected with a glass tube three feet long, to which a canula was attached, raised three feet above the patient's arm.

Dr. Gull's formula is based upon data, furnished by Carl Schmidt, of the analysis of healthy blood, as follows:

Soluble Salts in 1,000 Parts of the Water of the Liquor Sanguinis in Health.

Chloride of sodium.....	5·72
Chloride of potassium.....	0·627
Phosphate of sodium.....	0·367
Sulphate of sodium.....	0·176
Carbonate of sodium	2·13
	9·02

In Dr. Gull's formula, the sulphate of sodium is strangely omitted. A more accurate formula (the one which I recommend), deduced from Schmidt's analysis, is the following:

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Chloride of sodium	60	grains;
Chloride of potassium	6	"
Phosphate of sodium	3	"
Sulphate of sodium	1·5	"
Carbonate of sodium	20	"

Dissolve one powder in 24 ounces of water at 100·5° F. The fluid should enter the vein at a rate not exceeding one ounce per minute, and this can be accurately regulated by means of the stop-cock in the canula. The quantity of fluid to be injected, if a saline solution be used, is from 12 to 24 ounces. The injection may be stopped when the pulse becomes stronger and the temperature of the peripheral parts of the body are more nearly normal.

The arterial injection of fluids has, within a few years, been strongly advocated by Hüter and others, and Halsted, of New York, has reported three successful cases and favors central arterial transfusion in all cases where the operation is indicated.[1] The advantages claimed for arterial over venous injections are the following: Air or small clots, accidentally introduced into the blood, are caught and retained in the capillaries and do no harm; there is less danger of overpowering the heart by a too rapid introduction of the fluid; and it is often easier to find an artery (the radial) than a suitable vein. This last advantage, at least, must be conceded.

Cases in which Transfusion is indicated.—These include all cases of acute anæmia produced by sudden and copious loss of blood in which life is imperilled; and a favorable result may be expected in such cases in persons previously healthy. It is a classical operation, so to speak, in puerperal hæmorrhage occurring during or after delivery; and it should be practiced, not merely to prevent immediate death, but also to avert the danger of blood-poisoning which so often follows the copious loss of blood.

In hæmorrhage from large vessels, as well as in wounds of small vessels where the hæmorrhage is only moderate and yet is

[1] *Loc. cit.*

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sufficient to prevent the reaction requisite to enable the surgeon to perform a necessary operation, it is a valuable expedient.

In hæmorrhage from the bowels and stomach, it is contra-indicated, except as a *dernier ressort*, because of the danger of exciting another hæmorrhage by dislodgment of a thrombus; but it may be used in such cases for the anæmia which follows several days after the hæmorrhage has ceased.

In hæmophilia, there is danger of aggravating the hæmorrhage by increasing the force of the heart's action, and there is danger, also, of fresh hæmorrhage from the wound inflicted in the operation. It may be used, however, as a last resource to save life; and Lane has reported such a case, with recovery.[1] In purpura hæmorrhagica, it does not promise much, since it can not lessen the danger of new hæmorrhages.

In excessive and persistent vomiting threatening life, whether produced by the use of ether as an anæsthetic or by other causes, it may prove of great value. In epidemic cholera it should be more generally used, as well as in acute diarrhœa and dysentery and in some of the low forms of fever threatening speedy dissolution. It may often be employed with advantage in chronic surgical anæmia produced by long-continued suppuration and loss of reparative power. The patient may be brought by transfusion to a favorable condition for an operation followed by recovery. Such a case is reported by Barwell.[2] Halsted has reported[3] a case of septicæmia from suppurative disease of the ankle and tarsal bones, in which depletory transfusion was practiced, which so improved the patient as to permit amputation of the leg, with recovery. In opium-poisoning, transfusion may produce favorable results, especially if depletory withdrawal of blood from one vein be made simultaneously with the injection of a proper fluid into another vein. The poison would be eliminated, and the fluid remaining in the body would be more diluted and therefore contain a smaller proportion of morphine. In the collapse from poisoning by illuminating-gas, it

[1] "The Lancet," London, vol. xvii, p. 185.
[2] "The Lancet," London, April 21, 1877.
[3] "New York Med. Jour.," *l. c.*

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has recently proved efficient in the hands of Garrigues, Bull, and Halsted, of New York. In such cases, also, depletory transfusion should be practiced. The operation can not be considered dangerous or reckless, for it has often been successfully performed and followed by recovery under the most adverse circumstances. It should not be resorted to as a last and a desperate remedy. If it be delayed until the patient is moribund, the functions of the circulatory system may be so far impaired that recovery is impossible, and a temporary improvement is almost certainly followed by a speedy and fatal relapse. It is contra-indicated when there is organic disease of the circulatory organs (Quain).

The matter presented in the preceding pages seems to the writer to justify the following conclusions:

1. It appears to be proved, by experiments upon animals and by clinical facts, that corpuscles of transfused blood are short-lived and rapidly excreted; that the reviving power of blood does not reside in the red corpuscles; and hence the danger of excessive loss of blood is not due to the diminution of its corpuscles and other solid constituents.

2. The important element in transfusion is the restoration of fluid to the vascular system, increasing vascular tension and causing energetic contractions of the heart.

3. The intra-venous injection of saline solutions in appropriate cases is a more simple and is a safer operation than transfusion of blood. It can be done without the aid of a skilled assistant, and the materials for injection are easily obtained.

4. If further experience should confirm the favorable results from intra-venous injections that have been recently reported at home and abroad, the operation deserves to be held in the highest esteem, and it is destined to occupy an important position among therapeutic agents.

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DISCUSSION ON DR. MOORE'S ADDRESS AND ON DR. HUTCHISON'S PAPER.

Dr. T. F. Rochester, of Erie County.—I should like to make a suggestion, based on one or two cases of transfusion which I have witnessed, in which I should think that the quality rather than the quantity of transfused material had to do with the result. About eighteen months or two years ago, I witnessed an operation upon a girl suffering from syphilitic constitutional disturbance, the patient being excessively anæmic and unable to obtain relief from the various measures that had been adopted. Dr. Carey, of Buffalo, made a transfusion of certainly not more than two ounces of blood taken from the arm of Dr. Frederick. The patient suffered scarcely any disturbance during the operation, and rapid improvement took place afterward. It seemed to me that an effect like that from an ounce and a half or two ounces of blood must be due to the quality rather than to the quantity of the transfused liquid. The patient got perfectly well without any further treatment than nutritious diet.

Again, I remember, when in New York in 1849–'50, that patients in the cholera hospitals receiving transfusion of a saline solution, while they were in a state of complete collapse, would be restored, as it were, to complete health for a few hours, but that they finally died. But if nothing more than temporary restoration could be effected in these cases, it was a great deal gained, as it would give time to make a will and to arrange a variety of matters. I think there was a good deal in the quantity represented in the saline solution; but I also think that there was something more than the mere dynamic power represented in the small quantity of blood employed.

The President remarked, with regard to saline injections in cholera, that there was a saying, "Salting a patient and curing him are two different things."

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ON THE DURATION OF CONTAGIOUSNESS AFTER ACUTE INFECTIOUS DISEASES.

By Alfred Ludlow Carroll, M. D., of Richmond County.

Read November 18, 1884.

Under most sanitary authorities, a salutary regulation exists forbidding the return to school of any pupil convalescent from a contagious disease, except upon a medical certificate that the danger of infection is past; and, aside from this very necessary precaution against the perpetuation and dissemination of infection in schools or through other public intercourse, our more private duties to our clients almost daily call on us to decide when it may be safe to permit the restoration to the family circle of some patient whom we have been carefully isolating in a separate chamber during the course of an acute infectious disorder. From many points of view, therefore, this inquiry is one of great practical importance to the public and to our profession; and yet, in the present state of our knowledge, it is one of the most difficult to answer. We know the limits of incubation of most of the infectious zymoses; we know something of the ætiology of many of them; we know much of their natural history; and we are unlearning much as regards their treatment. But, in our narrow field of observation, we know nothing of the wider and more momentous question: When do they cease to threaten others than the individual under our care? In our preventive efforts, we have for years gone on in blind empiricism, erring, perhaps—as it is the proper part of ignorance to do—on the side of overcautiousness, but without any definite facts to guide us. Much

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time must elapse, and many accurate observations be made, before such facts can be established and fixed rules of conduct deduced from them; and my intention is, not to advance any new theories, but simply to present for consideration a subject which, in an assemblage such as this, may profitably serve as material for "collective investigation."

In the consideration of this question, we must theoretically exclude the retention of the several contagia by fomites. Without doubt, much perplexity has hitherto arisen from the undetermined part played by infected clothing resumed by the convalescent patient, or by other inanimate articles. For our present purpose, we must assume that proper measures of disinfection have been pursued with regard to these, and that we have to deal solely with the body or the excreta of the individual.

Another element of uncertainty lies in the "personal factor"; the varying susceptibility to infection of different persons, or of the same person at different times. Of a hundred unprotected persons exposed to the contagium of small-pox, measles, or any other infectious zymosis, a considerable percentage will escape infection; but their immunity is, of course, no evidence that the transmissibility of the virus has ceased.

At the present day most of us, probably, are convinced that, in the majority, if not in all of the communicable zymoses, certain forms of microphytes act, if not as the specific causes, at all events as the carriers of disease; and, from this point of view, our ultimate certitude as to the question at issue must come from further biological research into the life-history of the various pathogenic or pathophorous schizophytes and the latent vitality of their resting spores. But, in the mean time, our course must be shaped according to the best conducted observations at our command.

The only attempt within my knowledge to formulate experience in respect of the duration of infectiousness is that of Dr. Miller, of Dundee,[1] whose tabulation is as follows:

Small-pox..... 14 days after termination of scabbing.
Typhus..... 28 days from inception.

[1] "British Medical Journal," July 30, 1881, No. 1074, p. 173.

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Scarlet fever.....	7 weeks from inception.
Diphtheria.....	6 weeks from inception.
Whooping-cough.	8 weeks from inception.
Measles.....	6 weeks from inception.

The first thing that strikes one about this table is the omission of any estimate of the duration of infectiousness in the discharges from such diseases as enteric fever or cholera; the second, the rather arbitrary assumption of intervals which, in some instances, may seem unnecessarily long.

In order to ascertain if there were any consensus of professional opinion regarding the points so often brought before me in my official position, I addressed, some months ago, a note of inquiry to several of the leading medical teachers and hospital physicians of this and other cities, whose names, for the present, I shall leave unmentioned, as their kind replies were intended to form the basis of a report to the State Board of Health. I may, however, briefly recapitulate the views presented in their valued communications.

SMALL-POX.—As to small-pox, there is practically unanimity in regarding the danger as existing until all crusts are removed; but a few incline to prolong even further the period of isolation. One of our most eminent teachers writes that "at least eight weeks should elapse . . . before a child that has been affected with it should be allowed to return to school." On the other hand, a gentleman of wide sanitary experience apprehends but little danger from the crusts which sometimes linger under the thick skin of the soles and palms, provided that every scab be removed from the body and hair, and that thorough cleansing of the surface be effected. Other correspondents fix the duration of quarantine "during the whole of desquamation"; "until the cicatrices are fully healed"; "until all traces of the cutaneous affection have disappeared and everything is removed from the surface of the body by repeated ablutions"; and other replies are to the same effect; while one writer approves, in general terms, the rule of the Boston Board of Health, as regards all infectious disorders, that four weeks should elapse from the be-

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ginning of the last case of disease in the family, before a patient should be allowed to attend school.

Typhus Fever.—In relation to typhus, the responses are fewer and less in accord. One deems fomites the most important factor in the dissemination of the malady, while the rest lay stress on personal contagion. One regards it as "not contagious after a short interval"; a second advises segregation until repeated baths have followed the complete disappearance of the cutaneous exanthem; a third, somewhat indefinitely, would permit return to school "after complete recovery and disinfection."

Typhoid Fever.—Those who believe in the direct personal contagiousness of enteric fever are few in number; and I fancy that nearly all of us will agree that the intestinal discharges are all with which preventive medicine has concern. Whether these retain their infectious properties during the whole process of the malady, is a question still in uncertainty, and rendered more obscure by the apparent demonstration that the disorder may, under certain undetermined circumstances, be generated *de novo* from ordinary sources of filth-poisoning. At all events, isolation of the person seems unnecessary as soon as convalescence is complete.

The same considerations will apply, I believe, to cholera, with the further remark that, if Koch's recent observations be correct, the germs of this disease appear to be shorter-lived than any other known species, being destroyed, not only by desiccation, but by the "scavenger bacteria," which conquer them in the struggle for existence in the products of common decomposition.

Diphtheria.—Diphtheria affords a wider debatable ground. To begin with, there are many (among whom my own experience forces me to class myself) who assign the first place in the pathogeny of diphtheria to filth-poisoning and doubt its exceeding contagiousness. Of a number of persons exposed to the same pathogenic conditions, it is not surprising that several should succumb; but this is not convincing evidence of transmission from one to the other, and I have seen repeated instances where, despite intimate contact, the disease failed to

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extend after its introduction into places in proper sanitary condition.[1] Moreover, the experiments of Péter and Trousseau serve to show, at least, that diphtheria is not contagious under all circumstances. One of my correspondents, who has long had charge of a large hospital for children, believes this malady to be "feebly, if at all, contagious," and finds it quite safe to remit quarantine "after the disappearance of membranes"; a practical sanitarian, of national reputation, excluding fomites and filth in air and water, does not believe in personal contagion; a distinguished teacher in one of our metropolitan colleges doubts "its communicability, except by contact"; another, equally eminent, declares that contagiousness endures until the last trace of inflammation or infiltration secondary to the diphtheritic process has disappeared; a fourth would protract the duration of quarantine for a month, or, at least, three weeks, after all symptoms have abated, and would forbid return to school while any redness of the fauces or any coryza lingers. The discrepancy of opinions in this respect among the leaders of professional thought suffices to show the need of more definite data to guide our deliberations.

Whooping-Cough.—In pertussis, all opinions agree, save one, that contagiousness ends when the cough loses its spasmodic character; the single doubtful view being that, as the danger is wholly from the breath of the patient, it cannot be determined how long the cough may convey infection. It should be remembered, however, that a few writers have expressed doubts of the contagiousness of pertussis in any stage.

Measles.—With regard to measles, I find equal diversity of views. One regards its contagium as very volatile, not long adhering to person or clothing, and permits the return of the patient to school in two weeks after convalescence; a second would defer liberation from quarantine until a week, at least, after desquamation; a third releases the patient when desquamation has ceased, or, in cases where no desquamation occurs, after twenty-one days; a fourth fixes eighteen days; a fifth be-

[1] *Vide* a paper by Dr. M. A. Avery, Assistant Physician to the Nursery and Child's Hospital, in the "N. Y. Medical Journal," February, 1882.

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lieves the danger past when the febrile stage and eruption are gone. The majority measure the time of isolation by the process of epidermal exfoliation.

SCARLATINA.—In scarlatina, also, we have opposing opinions, ranging from that which considers it as a pythogenic disease, slightly, if at all, contagious from the person, to that which holds the infection to be communicable by the pulmonary exhalations, the blood, the naso-pharyngeal secretions, even the urine, as well as by the epithelial scales. One of my correspondents thinks the infection remains so long attached to the person that quarantine should endure for eight weeks; another cites an example of transmission after six weeks of isolation, followed by a change of clothing; the rest concur in releasing the patient after desquamation has ceased and the surface been thoroughly cleansed. Most of us, I dare say, have adopted this "rule of thumb." In my own practice, for some years, I had the patient frequently anointed with carbolized or thymolized vaseline, endeavored to maintain complete isolation until all desquamation was at an end, and then prescribed two or three thorough baths, including a careful washing of the hair and scalp. But on several occasions I found that the quarantine which I had ordained was considerably abbreviated by the parents or the patients themselves, and that children still furfuraceously desquamating after scarlatina or measles had indulged in social intercourse, or had even returned to school, without conveying infection to their companions; and it occurred to me to wonder whether—granting that the exfoliated epithelial scales are the principal carriers of the contagion—all the successive crops of cast-off scales were acting as chariots for infective micro-organisms, or whether the later-arrived cells, as they rose from the deeper layer to become cornified in their turn and ejected, might not be quite free from taint. The same idea has evidently struck one of my most esteemed correspondents, who, speaking of quarantine during desquamation, adds that "forty days are sufficient," and that if, as sometimes happens, the scaling process seems to last much longer, it is "no longer scarlatinal in character, but the result of dermatitis in general in a skin which has

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not regained its original health, without its being the seat of an infectious or contagious process."

I am quite aware that I ought to apologize for even this brief intrusion on your patience, when, instead of bringing any addition to your stock of knowledge, I come only to subtract from it, so to speak. But, forasmuch as "the promotion of public health" stands second on the list of objects of this Association, I trust that I shall be pardoned for simply pointing out the uncertainty which exists in relation to one of the most needful means to promote public health, and for invoking your collective aid in elucidating the problem.

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THE THERAPEUTICS OF DIPHTHERIA.

By J. W. Moore, M. D., of Albany County.

Read November 18, 1884.

The specific character of diphtheria, its contagiousness, either as an epidemic or endemic, I shall not discuss.

That it is characterized by a peculiar lymph-exudation, manifesting itself on mucous surfaces, such as the uvula, tonsils, palate, nares, larynx, and trachea; that this exudation is cacoplastic, which, with the epithelial cells, forms a thick, tenacious membrane, depositing itself, sometimes with great rapidity, upon the organs named; and that the local manifestations are accompanied or preceded by various constitutional symptoms, we all know, and I shall not attempt to describe these characters.

In the "Medical Record," a few months ago, accounts of the treatment of diphtheria by five different authors of note are given. All agree so far as hygienic laws are concerned, but they differ considerably as regards the therapeutics of the disease. Four advocate the use of iron in various forms; one attaches no value to it whatever as a faucial remedy; one lays considerable stress on iodine, while the rest do not mention it. Quinine is advocated by three, and disapproved by two; chlorate of potassa has friends in three out of five; topical remedies are recommended by three, and not mentioned by two; and so on, showing the differences of opinion of five celebrated practitioners, each of whom has given extensive study to this disease. For instance, Dr. Stillé recommends ice in the mouth, muriatic acid applied with a brush, with potassium chlorate, tincture of iron, lactic acid, and potassium permanganate. He mentions emetics as sometimes advantageous in the early stages, alcohol

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and stimulants of quinine and iron, fluid beef and milk. He says tracheotomy is fatal in about three fourths of the cases.

J. Solis-Cohen maintains that keeping up the supply of nourishment and stimulants and providing for the detachment and discharge of the morbid accumulations are the two main indications. Besides his hygienic directions, he regards the chlorine compounds as of more efficacy than all the other remedies; the principal of these being the tinctura ferri chloridi, in thirty-drop doses, every half hour or every second hour, given with glycerin or sirup of lemon. He also recommends hydrochlorate of quinine, strong wine or brandy in decided doses, and, at moments of sinking, carbonate of ammonia and ice in the mouth at intervals; but ice compresses are not approved. He suggests applications of the tinctura ferri to the pseudomembrane, but does not advise the forcible removal of the deposit. Upon invasion of the larynx, or if respiration be impeded, he recommends inhalation of the vapor from slaked lime, and emetics to provoke expectoration in children but not necessarily in adults. In threatened asphyxia, tracheotomy is to be employed to avert death.

Bartholow believes in two indications: first, to shorten the duration of the disease; second, to obviate the tendency to death. He disapproves of caustics and acid applications, as inviting the disease to the adjacent portions of the mucous membrane by destroying the epithelium. He approves of the application of sulphur, in form of powder, by insufflation, and of the vapor from slaked lime, and a weak solution of lactic acid applied to the throat by a large mop. He attaches no value to potassium chlorate or tinctura ferri as faucial remedies. In gangrenous sloughing, he recommends a one-per-cent solution of carbolic acid, applied either to the throat or nares. Under the second head, with the earliest appearance of an exudation, he gives from two to ten grains of the bromide of ammonium every three hours, in the belief that its diffusion tends to detach the exudation. To prevent septic decomposition, he advises a drop or two of Lugol's solution of iodine in water every hour or two, giving alcohol and quinine steadily when the exudation is fully

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developed. Fearing the injurious action of potassium chlorate upon the kidneys, he does not believe in its power as a curative agent. He gives as food, milk, eggnog, and beef tea, freely every three hours.

Dr. A. Jacobi believes alcohol to be a very important remedy, given in large doses, from two to twelve ounces daily; also, chlorate of potassa not to exceed a scruple daily, inhalations of vapor, particularly in fibrinous tracheo-bronchitis, and the drinking of large quantities of water, with a view of macerating the membrane. He believes that the internal and external use of ice and the use of lime-water and lactic acid have been greatly overestimated. He uses glycerin simply as an adjuvant. Chloride of iron is valuable, as is carbolic acid, in a one-per-cent solution, both by local and internal administration.

Dr. C. E. Billington recommends an iron-mixture with glycerin and water, and also a mixture of potassium chlorate, alternating with glycerin and lime-water. He uses a spray of carbolic acid and lime-water, never applying a brush or swab to the throat. He does not give quinine or any other unpleasant medicine to children, or employ alcoholic stimulants, unless when a child will not take other nourishment except eggnog. He depends for nourishment on cold milk with a little lime-water.

Assuming the asthenic character of the disease, with the remarkable tendency to produce anæmia, some form of iron seems to be indicated.

It seems to me the main object in treatment is to induce the solution of the membrane and to prevent its re-formation when once removed. I do not believe in gargles, but sprays and topical applications are of great service. As regards antiseptics, Mackenzie lays considerable stress upon potassium chlorate, giving as much as from ten to twenty grains every two or three hours, and does not mention the nephritic danger so much dreaded by many physicians; and I may say that, while recognizing the possible deleterious effects of the chlorate upon the kidneys, and while I give it in nearly every case coming under my care, I have yet to see the first case of nephritic trouble

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produced by its administration. I do not give it in the large doses recommended by Mackenzie, or even alone; but I generally administer it combined in solution with some other remedy, in doses never to exceed five grains every two or three hours, and I believe its constitutional action is such as to oppose the reproduction of cacoplastic exudations, thinning them when already formed. Salicylic acid is recommended by some, but, as it is converted into salicylate in the system, it ceases to be antiseptic.

After attending to the hygienic conditions, assuming that we have the advantages of a comfortable, well-ventilated room, and can control the temperature and humidity of the atmosphere (for often we have to treat our patients as we find them), as the thin patches of false membrane present themselves, with the other concomitant symptoms, I gently spray the throat with a weak solution of chlorine gas, made by the action of tincture of chloride of iron on the potassium chlorate, slowly adding water as the chlorine gas is given off. I also begin the treatment with from ten to fifteen drops of the tincture of chloride of iron internally, every three hours, in a little glycerin and water. If the disease be not checked on the second day, I apply, myself, a spray composed of potass. chlorat., ℈j; carbolic acid, pure, gtts. iv; aquæ, ℥ij, M., three or four times a day; and twice daily I apply, myself, thoroughly, with absorbent cotton on an ordinary sponge-holder, a mixture composed of iodine, grs. iii; potass. iodid., grs. vi; aquæ, ʒij; glycerin, q. s. ℥j. M. This I have found one of the best topical applications I have ever used; and with most cases this application, applied thoroughly but gently at least twice daily, will, by the fourth or fifth day, so loosen the exudation that it can be easily removed with a pair of forceps without tearing it off. I do not believe in tearing off the exudation. Occasionally a slight hæmorrhage will follow the removal, but so far I have had no trouble in controlling this with a little tincture of iron applied with soft brush. The efficacy of these remedies depends on the thoroughness of their application. It is not well to depend for their application upon the parents or attendants, for while parents will be afraid

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of injuring their children, attendants will be apprehensive of the disease.

In connection with local applications, I administer freely iodine, in form of Lugol's solution, in doses of one drop with a half-drop of pure carbolic acid in a little glycerin and water, every two hours, and increase the intervals of the administration of iron to four or five hours. I also give brandy as a stimulant after the second day, to the amount of from four to six ounces in the twenty-four hours.

I fully agree with Dr. Jacobi that the internal and external use of ice, lime-water, and lactic acid has been greatly overestimated.

The treatment I have just laid down in brief has been my plan for the last year and a half; and I must say it has been followed with remarkable success. Of course it has failed me at times, particularly when the recuperative action of the system could not be brought about quickly enough to prevent the membrane from extending downward into the larynx and trachea, the patient dying from fibrinous tracheo-bronchitis in spite of tracheotomy. I believe, if life can be maintained for a certain number of days, nature herself will make a decided curative effort, even in the severest cases. Then is the time when our stimulating and supporting treatment comes in play.

At the present day, I doubt if there be a disease that has more thoroughly and severely taxed the ingenuity and the therapeutical resources of the physician than the one under consideration; and at times our earnest efforts will meet with failure, no matter how much we may study and devise, or how particular we may be in carrying out innumerable little details, hygienic, dietetic, and medicinal.

I do not believe in emetics; for, unless the exudative stage be ended, the ejection of the false membrane affords only a temporary respite, new layers forming speedily, to replace those which have been thrown off. Then, again, the prostration and emaciation in diphtheritic patients is so great that the liberal administration of alcohol seems to be imperatively demanded, instead of depletion such as would be produced by most emetics.

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MODERN PROGRESS IN MATERIA MEDICA AND THERAPEUTICS.

By E. R. Squibb, M. D., of Kings County.

Read November 18, 1884.

Twenty-five years' experience in supplying a small part of the medical profession with some of the established articles of the materia medica suggests a retrospect of what has appeared to be the progress made in the remedies used and the use of remedies in the treatment of disease.

The very large and important modern progress in the discovery and application of new remedies, and the improved views and processes of the books and journals, are not to be considered here; but only the elements of that slow and substantial progress made among that class of close observers, scattered all over the nation, who learn most and improve most on their own observations and experience, who read much, but rarely write, who are rarely seen in the medical societies, and whose progress, therefore, has to be inferred from the use of the materials they employ in the practice of their art. The number of those who are quite outside of the medical organizations, or who are simply enrolled without taking any active part, is very large indeed, and their value and influence in the profession are very great and generally conservative and good.

From a pretty close association with some of this class in all parts of the country, through their correspondence and a certain familiarity with their wants in the materia medica, when not prompted by the ubiquitous "drummer" and his wares, the following points of progress are either indicated by facts or are inferred from collateral circumstances; and the points are made

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here, in the loose form of inference, not simply or principally as a retrospect of the past, but as being of much more importance in the progress of the future.

That is, modern progress is taken in the sense of learning from the advancement of the recent past what to work for and to look for in the near future.

First, the thoughtful physician seems more and more to realize the fact that his success as an individual, as well as the success of his profession, depends upon his real utility to the public. As the age grows more and more utilitarian, so the profession has answered and must answer to this progress. The demands of the public upon the medical profession are that disease be prevented as far as practicable, that it be successfully managed when it comes, and that its damages be skillfully repaired; and, in proportion as these demands are rationally and successfully met, will the standing of the individual and of the profession to which he belongs be elevated.

The public, though much interested in abstruse researches and ingenious speculations and theories of health and disease, is only entertained or amused by them; and the profession not only gets little substantial credit for them, but often has them turned against it in ridicule. All this is becoming better understood and realized; and the physician is looking more and more carefully, not only for knowledge, but for the means of applying it. He makes the accurate investigation of disease, but he does not rest there; he tries to control the abnormal conditions found. Much less is heard of expectancy, much less of "Young Physic," than formerly. Active agencies carefully studied and skillfully used are much more common now; and the search after such agencies is even becoming hurtfully keen, so that there is danger of an extreme opposite to the former expectancy.

Instances might easily be given of individuals of no uncommon attainments or opportunities, gifted with neither the polished manners nor liberal morals which so often contribute to one kind of success, but fairly equipped with the known means of controlling disease, who, often in frontier populations, within five or ten years, show to the communities in which they work

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the utilitarian value of a doctor, and through him of his profession. Success, to his community, means success to him and to his profession at large. And the success which begins in the actual results of his skill and labor in his community endures and increases just in proportion to its utilitarian character. Thermometers, urinometers, litmus-paper, test-tubes, and a few reagents, are always found in the orders of such physicians, and plain microscopes and even sphygmographs, occasionally. Their materia medica proper is commonly simple, the articles not many, but effective, and rarely outside of the Pharmacopœia, and their orders for the newest and best advertised remedies are often conditional, always in very small quantities, and, as a general rule, they are not repeated.

Few will doubt the dependence of the profession for success upon its utility to the public; and very much of this utility must always depend upon therapeutics, and this, in turn, upon the materia medica. Hence, if there be a progress in materia medica and therapeutics, it is an improvement of the very foundation upon which the medical profession rests, and its importance in the future can hardly be overestimated.

Another important reformation that appears to have been slowly and steadily going on in the recent past is in the value of the word, cure. The old idea of specific or particular diseases and specific cures seems to have undergone considerable modification for the better, not only among the intelligent portion of the people, but in the medical profession. That diseases are all so many definite entities, for each of which there is a special cure or antidote, if it could only be discovered, and that incurable diseases are those only for which cures have not yet been discovered, but for which they may be discovered at any time, is a doctrine which common education in the sciences is steadily bringing into a newer and truer light. Many physicians successfully treat disease, if not diseases; but very few undertake cures. Neither do intelligent persons call physicians with the unalterable idea of being cured. They rather seek for skilled advice, and they submit themselves with more or less confidence to be so controlled that they may have the best chance of speedy

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recovery. And when well, they are not so often, in their own language—and still more rarely in that of the physician—cured, but have simply recovered. Modern progress seems to indicate that the farther both the public and the profession get away from the old meaning of this word, cure, the better; for when it is properly understood in the modern light of cause and effect, much complex, indiscriminate drugging will be saved, and the dealers in cures—from corn-cures to cancer-cures—will have their mercantile enterprises better understood. If modern therapeutics be coming to have less and less to do with cures, in the old acceptation of the word, then materia medica is surely equally progressive; for there are probably hardly any now who believe in the possibility that any drug should cure any disease, and therefore it is doubtful now whether there be much chance left, in the profession of medicine at least, for repetitions of the episodes of Cundurango, Missisquoi Water and mud, and Chian Turpentine. But, as the doctrine of cures disappears, the utility and certainty of remedial agents become better established, so that the modern progress is attained in both directions.

Another element in the progress of the recent past is a gradual and steady emancipation from the trammels of arbitrary doses of medicines. Physicians are no longer satisfied now with the doses given in the books. With increasing knowledge and broader views, they now look for effects; and the time is, perhaps, not far off when the only use of stated doses of medicines will be to know what quantity to begin with. It has come to be very commonly recognized that different persons, and even the same person in different conditions, are very differently susceptible to the action of medicines; and that, within certain limits, quantities must be adjusted to almost every individual case. In three successive cases of confirmed epilepsy in adults, the number of seizures was not sensibly reduced by less than 100 grains of bromide of potassium a day in one case, 160 grains in a second case, and 240 grains in the third case, and these quantities produced only moderate bromism. Had the doses of the standard books been adhered to, two out of the three cases would have been unimproved by the remedy.

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There are cases in which ringing in the ears will be caused by 2 grains of sulphate of quinine; there are others which require 60 grains to give this sign of saturation; and there are persons in whom different quantities are required at different times. To treat a recurring malarial fever without recognizing these facts, is to fail of success and to discredit both the physician and the medicine, in a considerable number of the most difficult cases, where most credit is to be gained. Dr. William H. Van Buren, more than twenty-five years ago, emphasized this liability to be trammeled by arbitrary doses. In the treatment of consecutive syphilis, he found that a number of cases recovered under the use of 40 grains of iodide of potassium a day; but others were not impressed by less than 100 grains a day, while a few required 480 grains a day to give similar results. His teachings, and those of others who followed him, applying the same principle to other agents, have done much for the modern progress in this important matter of doses; for it is generally realized now among the best therapeutists that no remedy can be properly considered as having failed until it has been pushed to a physiological or a pathological effect.

There has also been very important progress made in the knowledge obtained and applied in scrutinizing the quality of medicines, which has resulted in the production of a better class of medicinal agents than was ever before attained; and it is of no small advantage to have learned that this close scrutiny and discrimination by individuals, throughout the length and breadth of the land, is far the most effective way of checking adulteration, and the mismanagement due to carelessness, ignorance, and cupidity in the vending of medical supplies. Year by year, more physicians realize the fact that the "drummer" is not their safest dependence, drum he never so wisely; and they listen to his voice and take his samples more warily, trusting in their own ability to judge of the agents which are so important to them and their patients.

Every year more "Pharmacopœias" are sold, more physicians confine themselves mainly within their scope, and more

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tests and reagents are used; and now that the "Pharmacopœia" has a full set of officinal test-solutions, it may be confidently expected that more physicians and pharmacists will learn to apply them in this important interest of effective medicinal agents. All physicians who want to know it know now that it is not the writing of papers on adulterations or the resolutions of societies, so much as the individual knowledge, care, and watchfulness of each physician for himself, that secures to him the character of his supplies. It has always been the case that good supplies could be easily obtained by proper care and scrutiny; but it has never been so easy as it is now, in consequence of the general improvement in the quality of supplies and the wider market for selection.

Moderately good and poor qualities are as plentiful and as cheap as ever; but the physician, having learned that cheap supplies are poor economy, is upon his guard if he desire to be. He has also learned that high-priced supplies are not always the best, and hence his safety lies only in his own testing processes and in avoiding complex remedies and forms of medicine which it is difficult or impossible to test.

Another element of progress, notable within the past few years, is that physicians use fewer and more active agents and use them more simply. The time for complex prescriptions and of using several agents at the same time seems to be passing away; and physicians do not go from one preparation to another so easily as heretofore. The using of a few definite agents and the knowing from personal observation just what they will do is of such manifest advantage that it would be strange indeed if there was no progress here. Physicians' orders, from being long and embracing many doubtful and indefinite articles and many duplicates or articles used for similar purposes, are, in the main, now short and compact. Ten or fifteen standard medicines at a time are about all that an ordinary physician wants; and this, about twice or thrice a year, keeps up a supply of not over double that number of agents in all, for common daily use. This enables him to watch the qualities better and to keep his stock fresh and in the most efficient condition.

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Much progress has also been made in using more concentrated forms of medicines. Decoctions, infusions, vinegars, and wines, have almost gone out of use; while tinctures and syrups are steadily falling into disuse, though not so rapidly as they deserve. These are all replaced by the far more accurate and convenient fluid extracts, with their small and effective doses, which can be so easily administered in so many different ways. Thus the physician and pharmacist, instead of keeping two or three preparations of the same drug to get stale on his shelves, need keep only one, and this the best and most accurate one.

Much has also been gained in the precision with which medicines are measured for administration; and the measuring apparatus has been much extended and much improved in accuracy, so that it is not difficult now to get fairly accurate weights and measures at a reasonable cost.

The many and great advantages in the use of the salts of a few alkaloids have led to the extreme of seeking to extract and use the active principles of drugs, instead of the preparations of the drug, in all possible cases; and there are many excellent reasons for this if it were only practicable. Unfortunately, the so-called active principles rarely represent the drug from which they are taken, either fully or fairly, and they are of such variable strength that they are less trustworthy than the drug itself. Beside this, many of the alkaloids and nearly all the glucosides are so loose in their molecular structure, that they split up and become partially or wholly inert without change in appearance and under circumstances that are not known. Physicians who examine most closely into the character and processes of extraction of many, if not most of these so-called active principles, will see that they are frequently the result of the chemistry applied for their extraction, and that they do not pre-exist in the drug and therefore can only partially represent it.

Finally, perhaps the greatest progress of all has been in the power and definiteness of the agents used and in judging of the manner and the effect of using them. Many years ago when, among the first of these very definite and powerful agents, the American hellebore came into use for controlling the action of

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the heart, it was objected that its use was merely controlling a symptom of disease without going to the root of the matter at all. The pneumonia went on all the same, and perhaps the depressing action of the drug was simply added to the depressing action of the inflammation; and harm rather than good might be rationally expected to result. It took some time to show, by actual experience, that the drug could be given in controlling quantities without more depression than was needed in a sthenic disease, and that the lowering of the pulse rate by fifteen to twenty per cent meant the sending of fifteen to twenty per cent less of inflammatory blood through an inflamed, congested, and oppressed organ, whose obstructed functions were threatening life; and, therefore, that treating this pulse-symptom was really treating the whole of the disease by controlling its prominent element. It was thus clearly recognizable that, by subtracting one prominent element or symptom from the group which constitute a disease, the bond is broken, and it then tends to disintegration, just as, when an atom or a group of atoms is subtracted from a molecule, it splits up and loses its identity and its reactions.

Then, when bromide of potassium was successful in controlling the seizures of epilepsy, it was objected that it merely controlled the expression of the diseased condition, without affecting that condition, since, when the medicine was omitted or was used in too small quantity, the seizures would recur. But in the progress made in the recent past, it has been abundantly shown that, when the bromide is skillfully managed and continued with great perseverance and care for a sufficient length of time after the attacks had ceased, many patients were no longer in the condition which caused the attacks, and that thus, in treating the principal symptom, the condition causing it had also been treated successfully.

Again, in those agents which simply reduce temperature, as, for example, the use of salicylates in acute rheumatism, the effect is to control one symptom primarily; but it happens that, through the close relationship of symptoms, two others of equal importance are also controlled, namely, the pain and swelling.

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It is maintained that the disease goes on and commonly runs its course; but it is admitted that it is occasionally cut short, and that it is almost always rendered comparatively free from high fever, pain, and swelling; that heart damage is less liable to occur and is less serious; and that relapses are less frequent.

It is needless to multiply examples to show that great progress has been made in the acquisition of definite agents and in the knowledge of how to use them; and, should the next ten or twenty years prove as fertile in the resources of the medical art as is indicated by the progress of the past, the profession will occupy a much higher position in the estimation of the public than it now does.

It should not be inferred from the above that all the prominent changes in relation to the materia medica within the past few years have been improvements or have been for the good of either the profession or the public; for much doubtful medication has grown into common use with large numbers of physicians who do not seem to stop to think where the mercantile enterprise of the manufacturer is carrying them.

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NOTES ON DISLOCATION OF THE HIP, BASED UPON TWO HUNDRED AND SEVENTY-THREE CASES OCCURRING IN NEW YORK STATE.

By Frederick Hyde, M. D., of Cortland County.

Read by Title, November 18, 1884.

Although dislocations of the hip are rare, their written history dates from early times, and the old masters in anatomy and surgery have left records of their observations upon these important lesions. It is not, therefore, true that the infrequency of the dislocations in question can be urged in extenuation of errors in diagnosis and of the consequent bad results of their treatment. On the contrary, luxations of the head of the femur have been regarded, from an early period of the history of surgery, as entailing great responsibility upon those who have charge of their treatment.

There are many diseased conditions in which an incorrect diagnosis, or its too tardy correction, would not make so great a difference in the future welfare of the patient, the reputation of the surgeon, or the credit of surgery, as would be involved in a diagnostic error regarding luxations of the hip. Sometimes the surgeon removes a morbid growth which he considers benign, and the operation is followed by rapid and kindly healing; but recurrence of the neoplasm, after weeks or months, accompanied with well-marked cachexia and glandular involvement, often disproves the operator's early diagnosis, and he becomes convinced of the cancerous nature of the tumor. Under these circumstances, however, he can console himself with the thought that he may have helped to prolong life, and that his operation

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may have mitigated suffering, and such errors in a surgeon's record are not serious obstacles to his professional progress; but, when his faulty diagnosis has resulted in deformity or in lasting disease of an important organ, his surgical reputation may sustain such a shock that he will need all the counterbalancing resources at his command to reinstate himself in popular favor. It is for the purpose of aiding his fellow-practitioners to avert the sad consequences of errors in the diagnosis of luxations of the hip-joint, that the author has prepared this paper.

It is said that both the symptoms and signs are so well marked, in the four regular dislocations of the hip, that ordinary care can not fail to detect the site of the displaced articular head. Would this be equally true of each form of the different luxations? In the dorsal and the thyroid dislocations, the degree of shortening in the former and of elongation in the latter, with their corresponding signs, can scarcely fail to be recognized; but, in the variety generally called ischiatic, the signs are not always plain. Whether, however, the head of the bone be upon or in the ischiatic notch, I think that the deformity, the degree of shortening, and the inversion are less marked than in dorsal dislocations. In some cases, indeed, the discrepancy is so slight between the affected and the sound limb as to require the most careful examination for its detection. In the ischiatic form of dislocation, the thigh is so nearly on a plane with its fellow that the foot seems not to be inverted; but close observation will detect slight inversion of the patella, and if, with this sign, resistance to eversion of the foot be present, and pressure on the knee raises the loins, luxation surely exists.

Bigelow holds that there is no sacro-sciatic dislocation. Sir Astley Cooper, however, said that the ischiatic luxation was "extremely difficult to reduce"; but whether he meant because of the forcible detention of the bone in the ischiatic notch or not, I can not say. I think that it would be difficult to convince surgeons who have treated many luxations of the hip, that they have not seen and felt the head of the femur imbedded in the ischiatic notch; and I am scarcely prepared to believe, with Professor Bigelow, that there "is no dislocation into the ischiatic

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notch worthy of the name," or that "it is an error to suppose that during reduction the femur's head ever notably slips into the ischiatic notch." Having more than once had the hand upon the head of the femur when it was high upon the dorsum, during attempted reduction, and having followed the movements of the head until it dropped into the notch, I could see and touch it in that situation. On continuing efforts at reduction, I have felt the head rise from its abnormal position and move into its socket. I am, therefore, not justified, on the basis of personal experience, in subscribing to the doctrine advocated by Bigelow.

In the dislocation which we term ischiatic, the shortening and the inversion of the foot will depend upon the definite situation of the head, which may either be deeply fixed in the notch or may merely rest upon its margin. This accounts for the varying degree of shortening, the slight inversion of the foot, the trifling adduction of the limb, and, in some cases, for the close resemblance to the sound limb, as well as for the mobility of the injured member. We should keep in mind that, in the other three forms of luxation, the distance between the head of the bone and its socket varies so much that the degree of lengthening or shortening alone will not accurately define the situation of the head, even when taken in connection with the degree of adduction, abduction, or flexion of the limb. These conditions will be better determined by the direction in which the dislocating force was applied, by its violence, and by the position of the patient at the time when the articular head was driven from its socket. The site and extent of the rupture in the capsular ligament will also aid in disclosing the direction taken by the head of the bone and its distance from the acetabulum. The ligaments of the hip and their functions should be clearly in the mind of the surgeon. He should know that the capsular ligament is stronger and more dense in some parts than in others, and that it includes the margin of the acetabulum above, and incloses the neck of the femur below. It is much thicker at the upper and anterior part of the joint than below, near the thyroid foramen, where its comparative thinness and looseness

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oppose only a slight obstacle to the escape of the head of the bone. The ilio-femoral ligament is described by anatomists as intimately connected with the capsular ligament, and as extending obliquely across the front of the joint, being attached above to the inferior spinous process of the ilium, and below to the anterior intertrochanteric line. It is this ligament which Professor Bigelow describes under the name of the Y ligament, in his work on "The Mechanism of Dislocation and Fracture of the Hip," published in 1869, a book which should be possessed by every surgeon.

On page eighteen of the volume just referred to, the author says: "The Y ligament is of remarkable tenacity and strength, being at some points, when well developed, nearly a quarter of an inch in thickness, and forming an unyielding suspensory band by which the femur, when in a state of extension, as in walking, is forcibly detained in its socket." Professor Bigelow next cites certain experiments to prove the strength of the ligament, which can be ruptured only by weights varying from two hundred and fifty to seven hundred and fifty pounds. Some of the earlier anatomists speak of this ligament and of its bifurcation, but later anatomical teachers and writers did not do so, before the convincing demonstration by the distinguished surgeon to whom reference has just been made. Modern surgeons have now, so far as I know, unanimously adopted Professor Bigelow's views regarding the important relations of this ligament to the diagnosis and treatment of dislocations of the hip.

Professor Bigelow describes the Y ligament as more or less adherent to the acetabular prominence and to the neck of the femur; but it will be found to take its origin from the anterior inferior spinous process of the ilium, and, passing downward to the front of the femur, to be inserted into nearly the whole of the oblique spiral line which connects the two trochanters in front. It is about half an inch wide at its iliac origin, and but little less than two inches and a half wide at its femoral insertion. At the latter point it is bifurcated, having two principal fasciculi, one of which is inserted into the upper extremity of the anterior intertrochanteric line, and the other, into the lower

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part of the same line, about half an inch in front of the lesser trochanter. Since Bigelow's remarkable demonstration, less influence is attributed than formerly to muscular power, in determining the course taken by the head of the femur when it leaves the socket, and in affecting its reduction. The internal obturator muscle, however, situated, as it is, partly within the pelvis and partly behind the hip-joint, leaving the pelvis by the sacro-sciatic notch, passing horizontally outward, and being inserted, with the gemelli, into the upper part of the great trochanter, manifestly has important relations to dorsal luxations and to their treatment. I earnestly recommend that the anatomical relations of the Y ligament, and of the obturator internus muscle, be kept in mind by the surgeon when he stands beside a luxated hip, in order that he may know just how the head of the femur is situated with reference to one or both of these, and whether, intact or ruptured, they will hinder or facilitate reduction.

The cases of dislocation of the hip included in this paper were furnished the writer in response to a circular addressed to physicians in different parts of the State of New York, asking for statistics relating to luxations of the hip-joint. The promptness with which the questions were answered, and the minute details accompanying the cases, are hereby thankfully acknowledged. Eighty-two physicians responded to the circular. Twenty-four of these stated that they had never met with an example of dislocated hip, while each of the remaining fifty-eight reported the number of cases he had treated, with their clinical histories. More than one third of those who had never had a case had been in practice for from fourteen to fifty years, and were known as good, practical surgeons in their respective fields of labor. Many of the histories show great accuracy of knowledge regarding the anatomy of the injured structures, a clear comprehension of the principles involved in the treatment, and marked ingenuity in the selection and the modification of remedial measures. This is specially seen in the treatment by manipulation. The cautious surgeon will find, in these carefully detailed cases, a guide more reliable than ordinary text-books.

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The histories show particularly the desirability of carefully attending to the surgical anatomy of the hip-joint. A paper which should embrace the histories of all the cases in question would, however, far transcend the limits of time and space imposed upon writers by our Association; and I must content myself with presenting a *résumé* of the results attained, and with appending to my paper a tabulated statement of the salient features in the cases reported. It should be stated, as bearing on the rarity of the lesions under discussion, that, in several instances, injuries of the hip were diagnosticated as dislocations, which in due time proved to be fractures, usually of the neck and the upper part of the shaft. One distinguished surgeon reports that he has been called thirty times to consult in cases of supposed luxation of the hip, but that, in each instance, no dislocation existed. The comparative infrequency of this lesion is further illustrated by the statement, embodied in the report of many practitioners, that the surgeons in their vicinity, many of whom had been in practice for between thirty and fifty years, had never encountered a case of dislocation of the hip-joint.

The value of my statistics is somewhat impaired by the fact that some surgeons failed to report the age and sex of their patients, while many omitted to designate the kind of dislocations observed by them. My tables embrace an analysis of two hundred and seventy-three cases of dislocation of the hip, showing the comparative frequency of the different forms of the luxation, the age and sex of patients, with the various methods of treatment, and the results obtained. With the exceptions above noted, the figures under the respective headings of the table will speak for themselves.

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TABLE.

Number of cases reported.	Sex.		Ages.	Form of Dislocation.				Method of Treatment.			Results.				
	Male.	Female.		Dorsal.	Ischiatic.	Thyroid.	Pubic.	Manipulation.	Extension.	Manipulation with extension.	Reduced.	Not reduced.	Re-dislocation.	Perfect recovery.	Imperfect recovery.
1	1	..	45	1	..	..	..	1	..	..	..	..	1	..	1
1	1	..	50	1	..	..	..	1	..	..	..	..	..	..	1
1	1	..	40	1	..	..	..	1	..	..	..	..	..	1	..
1	..	1	68	1	..	..	..	..	1	..	1	..	..	1	..
3	1	..	60	1	..	..	..	1	..	..	1	..	..	1	..
	1	..	45	..	1	..	..	1	..	..	1	..	..	1	..
	1	..	48	1	..	..	..	..	..	..	1	..	..	1	..
2	1	..	..	..	..	1	..	..	1	..	..	1	..	..	..
	1	..	46	1	..	..	..	..	..	..	..	..	..	1	..
1	1	..	..	1	..	..	..	..	1	..	1	..	..	1	..
2	1	..	4	2	..	..	..	1	..	..	2	..	..	2	..
2	.	1	50	..	1	..	..	1	..	..	1	..	..	..	1
	.	1	26	..	..	1	..	..	..	..	1	..	..	1	..
	1	..	51	1	..	..	..	..	..	..	1	..	..	1	..
4	1	..	..	..	..	1	..	..	..	..	1	..	..	..	1
	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..
	1	..	..	1	..	..	..	..	..	..	1	..	..	1	..
1	..	1	9	1	..	..	..	..	..	..	1	..	..	1	..
1	1	..	26	..	..	..	..	1	..	..	1	..	..	1	..
1	1	..	..	1	..	..	..	..	..	..	1	..	..	1	..
4	1	..	6	1	..	..	..	..	..	..	1	..	..	1	..
	1	..	25	1	..	..	..	..	..	..	1	..	..	1	..
	.	1	24	..	..	..	..	..	..	..	1	..	..	..	..
	.	1	68	..	..	..	..	..	..	..	1	..	..	..	..
2	2	..	50	2	..	..	..	..	..	..	2	..	..	2	..
			48												
2	2	..	..	..	..	..	..	..	..	..	..	2	..	..	..
4	4	..	18 35 51 60	..	..	..	..	..	..	..	4	..	..	4	..
2	1	..	47	1	..	..	..	1	..	..	..	..	..	..	..
	.	1	10	1	..	..	..	1	..	..	..	..	..	1	..
1	..	..	..	1	..	..	..	..	1	..	1	..	..	1	..
4	1	2	..	..	..	..	..	..	..	..	4	..	..	4	..
1	1	..	50	1	..	..	..	..	..	..	..	1	..	..	..
4	3	1	40 57 48 47	4	..	..	..	..	..	..	2	2	..	2	..
1	1	..	..	1	..	..	..	..	..	..	1	..	..	1	..
1	1	..	50	1	..	..	..	..	..	..	..	1	..	..	..

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TABLE—(*continued*).

Number of cases reported.	Sex.		Ages.	Form of Dislocation.				Method of Treatment.			Results.				
	Male.	Female.		Dorsal.	Ischiatic.	Thyroid.	Pubic.	Manipulation.	Extension.	Manipulation with extension.	Reduced.	Not reduced.	Re-dislocation.	Perfect recovery.	Imperfect recovery.
2	1	1	25	2	..	..	..	1	..	..	1	..	..	1	..
			18		..	..	..	..	1	..	1	..	..	..	..
		1	8	..	..	..	1	..	..	.	..	2	..	..	..
2	1		60	..	1	..	..	..	..	..	..				
1	1	..	24	1	..	..	..	..	..	..	1	..	..	1	..
1	1	..	19	1	..	..	..	..	..	..	1	..	..	1	..
1	1	..	50	..	..	..	..	..	..	..	1	..	..	..	..
			74												
			80												
5	..	5	71	5	..	..	..	4	..	1	4	1	..	4	..
			80												
			80												
1	1	..	62	..	..	1	..	1	..	..	1	..	..	1	..
1	1	..	40	..	..	..	..	1	..	..	1	..	..	1	..
8	2	..	35	2	..	..	..	1	..	..	2	..	1	..	..
	.	1	1	..	..	..	..	..	..	..	..	1	..	..	..
	1	..	29												
8	.	1	8	3	..	..	..	..	..	..	3	..	..	3	..
	.	1	35												
	1	..	53	1	..	..	..	..	..	..	1	..	..	1	..
2	1	..	60	..	..	1	..	..	..	..	..	1	..	..	1
1	1	..	53	1	..	..	..	1	..	..	1	..	..	..	1
			12												
			37												
5	..	..	50	5	..	..	..	..	..	..	..	..	..	..	2
			53												
			70												
1	1	..	10	1	..	..	..	..	1	..	1	..	..	1	..
1	1	..	49	1	..	..	..	..	..	..	1	..	..	..	..
2	2	..	12	..	1	..	..	..	..	..	1	..	..	2	..
1	1	..	1	1	..	..	..	..	..	..	..	1	..	..	..
2	2	..	15	2	..	..	..	..	1	..	..	2	..	..	..
1	..	1	25	..	..	..	..	..	..	..	1	..	..	1	..
3	2	..	6	2	..	..	..	..	..	..	1	..	..	..	1
	1	..	50	..	..	..	..	..	..	..	1	..	..	1	..
2	..	..	72	1	..	..	..	..	..	..	..	1	..	..	..
			25	1	..	..	..	..	..	..	1	..	..	1	..
1	1	..	53	1	..	..	..	..	..	..	1	..	..	1	..
	1	..	4	1	..	..	..	..	..	..	1	..	..	1	..
4	1	..	18	1	..	..	..	..	..	..	..	1	..	..	..
	.	1	18	..	1	..	..	..	..	..	1	..	..	1	..
	.	1	65	..	..	..	..	..	..	..	..	1	..	..	..
1	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..

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TABLE—(*continued*).

Number of cases reported.	Sex.		Ages.	Form of Dislocation.				Method of Treatment.			Results.				
	Male.	Female.		Dorsal.	Ischiatic.	Thyroid.	Pubic.	Manipulation.	Extension.	Manipulation with extension.	Reduced.	Not reduced.	Re-dislocation.	Perfect recovery.	Imperfect recovery.
1	1	..	40	1	..	..	..	1	..	..	1	..	..	1	..
2	..	2	49	..	..	..	..	..	..	1	..	..	..	1	.
			45	..	..	..	..	1	..	..	..	1	..	..	..
1	1	..	25	1	..	..	..	..	..	..	1	..	..	1	..
2	2	..	50	2	..	..	..	..	..	..	2	..	..	2	..
			45												
1	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..
1	..	1	8	1	..	..	..	..	..	..	1	..	..	1	..
1	1	..	15	1	..	..	..	..	..	..	1	..	..	1	..
1	..	1	50	..	..	1	..	..	..	..	..	1	..	..	..
3	1	..	18	..	..	1	..	..	..	..	1	..	..	1	..
	.	1	80	1	..	..	..	..	..	..	1	..	1	..	..
	.	1	50	..	..	1	..	..	..	..	1	..	..	1	..
4	..	..	18 46 31 65	..	..	..	..	..	..	..	4	..	1	4	..
1	..	..	45	1	..	..	..	1	..	..	1	..	1	..	1
1	..	..	49	1	..	..	..	..	..	..	1	..	..	..	..
1	..	..	..	..	..	..	..	..	1	..	1	..	1	..	..
1	1	..	74	1	..	..	..	..	..	..	..	1	..	..	..
3	1	..	25	1	..	..	..	..	..	..	1	..	..	1	..
	1	..	50	1	..	..	..	..	..	..	..	1	..	..	..
	.	1	8	1	..	..	..	..	..	..	1	..	..	1	..
2	1	..	30	1	..	..	..	1	..	..	1	..	..	1	..
	1	..	20	1	..	..	..	..	..	1	..	1	..	1	..
3	..	3	65 25 18	3	..	..	..	..	..	..	..	..	..	3	..
2	..	..	8	..	1	..	..	..	..	..	1	..	..	..	..
			20	1	..	..	..	..	..	..	..	1	..	..	..
2	1	..	..	..	..	..	..	1	..	..	1	..	..	1	..
	.	1	12	1	..	..	..	..	1	..	1	..	..	1	..
5	..	..	19 12 37 47 90	5	..	..	..	2	..	..	3	..	..	2	..
3	1	..	29	1	..	..	..	..	..	..	1	..	..	1	..
	1	..	8	1	..	..	..	..	..	..	1	..	..	1	..
	.	1	35	1	..	..	..	..	..	..	1	..	..	1	..
2	1	..	8	..	..	..	1	..	..	..	..	1	..	..	..
	.	1	60	..	1	..	..	..	..	..	..	1	..	..	..
			8												

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TABLE—(*continued*).

Number of cases reported.	Sex.		Ages.	Form of Dislocation.				Method of Treatment.			Results.				
	Male.	Female.		Dorsal.	Ischiatic.	Thyroid.	Pubic.	Manipulation.	Extension.	Manipulation with extension.	Reduced.	Not reduced.	Re-dislocation.	Perfect recovery.	Imperfect recovery.
7	6	..	36	1	..	..	..	1	..	..	..	1	..	..	..
			45	..	1	..	..	..	1	..	1	..	..	1	..
			18	1	..	..	..	1	..	..	1	..	..	1	..
			20	..	1	..	..	1	..	..	1	..	..	1	..
			24	..	..	1	..	..	..	..	..	1	..	..	..
			19	1	..	..	..	1	..	..	1	..	..	1	..
	.	1	..	1	..	..	..	..	..	..	1	..	..	1	..
	.	1	24	1	..	..	..	1	..	..	1	.	..	1	..
15[1]	14	..	22	..	1	..	..	..	..	..	1	..	..	1	..
			28	..	..	1	1	1	..	..	1	..	..	1	..
			50	1	..	..	..	1	..	..	1	..	..	1	..
			35	1	..	..	..	1	..	..	1	..	..	1	..
			24	1	..	..	..	..	1	..	1	..	..	1	..
			26	..	1	..	..	1	..	..	1	..	..	1	..
			14	1	..	..	..	1	..	..	1	..	..	1	..
			39	..	1	..	..	1	..	..	1	..	..	1	..
			24	1	..	..	..	..	..	..	1	..	..	1	..
			32	1	..	..	..	1	..	..	1	..	..	1	..
			40	1	..	..	..	..	..	..	1	..	..	1	..
			25	1	..	..	..	..	..	1	..	1	..	..	..
			33	1	..	..	..	1	..	..	..	1	..	..	..
5[2]	5	..	63	..	1	..	..	..	1	..	1	..	..	..	1
			40	1	..	..	..	1	..	..	1	..	..	1	..
			33	..	..	1	..	1	..	..	1	..	..	1	..
			40	..	..	..	1	1	..	..	1	..	..	1	..
			35	1	..	..	..	1	..	..	1	..	..	1	..
6[3]	6	..	31	1	..	..	..	1	..	..	1	..	..	1	..
			27	..	..	..	1	1	..	..	1	..	..	..	1
			54	1	..	..	..	1	..	..	1	..	..	1	..
			6	..	..	..	..	1	..	..	..	1	..	..	1
			37	..	1	..	..	..	..	..	1	..	..	1	..
			2	1	..	..	..	1	..	..	1	..	..	1	..
91	16	11	5 to 45	53	..	..	..	..	..	..	22	31	..	..	2
	..	..	..	..	21	12	5	..	..	..	38	..	..	..	..

[1] From the "Records of the Bellevue Hospital," 1860 to 1882.

[2] From the "Records of the New York Hospital," 1877 to 1882.

[3] From the "Records of the Chambers Street Hospital" (imperfect), 1875 to 1882.

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TABLE—(*continued*).

Number of cases reported.	Sex.		Ages.	Form of Dislocation.				Method of Treatment.			Results.				
	Male.	Female.		Dorsal.	Ischiatic.	Thyroid.	Pubic.	Manipulation.	Extension.	Manipulation with extension.	Reduced.	Not reduced.	Re-dislocation.	Perfect recovery.	Imperfect recovery.
11	7	..	18	1	..	..	..	..	1	..	1	..	..	1	..
			60	..	1	..	..	..	..	1	1	..	..	1	..
			23	..	..	1	..	..	..	1	1	..	..	1	..
			61	..	..	1	..	..	..	1	1	..	..	1	..
			18	1	..	..	..	..	1	..	1	..	..	1	..
			20	1	..	..	..	1	..	..	1	..	..	1	..
			8	1	..	..	..	..	..	..	..	1	..	..	1
			8	..	1	..	..	1	..	..	..	1	..	..	1
		4	57	..	1	..	..	..	..	..	..	1	..	..	1
			50	..	1	..	..	..	..	..	..	1	..	..	1
			11	1	..	..	..	..	..	..	..	..	..	1	..
1	1	..	45	1	..	..	..	1	..	..	1	..	..	..	1
273	130	53	..	168	39	25	10	51	14	10	184	68	7	118	20

It will be seen that, of the 273 reported cases, 184 were reduced, 68 remaining unreduced; 27 per cent were therefore failures, and in 67 per cent, the operation was successful.

There were, so far as could be determined from the data furnished, 130 males and 53 females. The number of dorsal dislocations was 168. There were reduced 100, and unreduced 49, or, respectively, 67 and 32 per cent. The ischiatic dislocations, numbering 39, gave 5 unreduced cases, or 13 per cent.

The 25 thyroid luxations gave 4 failures, or 16 per cent, and the pubic dislocations, numbering 10, gave 2 unreduced cases, or 20 per cent.

The statistics show that 19 patients were between the ages of one and ten years; 22 between ten and twenty-five years; 23 between twenty-five and forty years; and 18 between fifty-five and eighty years. In one report of 91 cases, the ages were generally stated to have varied from five to forty-five.

Among the cases reduced we find 113 perfect recoveries

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against 20 that were imperfect; the latter being complicated by previous disease or fracture.

Conclusions.—1. The order of frequency for the four dislocations of the hip, as shown by the statistics of this paper, is, respectively—first, the dorsal; second, the ischiatic; third, the thyroid; fourth, the pubic.

2. The signs are so well marked in the dorsal luxations that this form can be readily diagnosticated.

3. The diagnosis was clearly made in the majority of the ischiatic dislocations, while, in a majority of the cases, the deformity was so slight, and the impairment of function so trifling, as to give rise to the opinion that no dislocation existed.

4. The treatment by manipulation or flexion is the most successful in recent luxations.

5. Traction or rotation, added to flexion when the latter failed alone, proved successful in several cases.

6. When extension and counter-extension are used, their efficacy will be enhanced by association with the necessary manipulations, chief of which is flexion of the femur at a right angle with the pelvis during the extension. The merits of this plan of treatment are demonstrated by its success in the recorded cases in the table.

7. In some cases of failure to restore the head of the bone to its socket, owing to the small aperture in the capsule, this orifice was enlarged, and the reduction was at once accomplished by circumduction of the flexed thigh.

8. In every reported case of dislocation of the hip, complicated by fracture of the acetabulum or of the neck of the femur, there was failure to reduce or an imperfect recovery, so that, if either of these conditions be known to exist, it would rarely be expedient to attempt reduction.

9. Reduction is more generally effected now than it was forty or fifty years ago.

In conclusion, I may ask whether my statistics show a larger proportion of unreduced dislocations of the hip than is necessarily incident to this accident. If this be true, it is an admission that surgery has achieved less in this than in other fields

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of labor. May not the large percentage of failures to reduce these dislocations be referable to errors in diagnosis or in the treatment adopted?

I suggest these questions, hoping that the figures presented may provoke a spirit of studious investigation in many surgeons who, attaining complete mastery of hip-joint surgery, will thereby greatly increase the proportion of cases of successful reduction. The rare occurrence of dislocations of the hip should warn us to keep our anatomical knowledge fresh by frequent dissections of the joint, in order that the phenomena of its luxations may, when encountered, be promptly and correctly interpreted. The ability to reduce a dislocated hip of weeks' or months' standing is creditable to the surgeon; but how far this ability will atone for failure to detect the nature of the case when recent, and to restore the head of the bone at once to its socket, while the latter is able to receive and to retain it, is a question which must be left for individual decision.

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CHRONIC INTESTINAL CATARRH.

By John S. Jamison, M. D., of Steuben County.

Read November 18, 1884.

There are few diseases which come more frequently under the observation of the general practitioner of medicine than those which affect the organs concerned in digestion; and one of the most important of this class of affections is chronic intestinal catarrh. The processes of intestinal digestion in health and their modifications in disease are not so well understood by many practitioners as they should be, in view of the importance of many of the disorders which affect the intestinal tract; and mere medication, unassisted by a judicious regimen, is usually unequal to the task of successfully combating the diseases to which this part of the digestive system is subject.

A large percentage of cases of intestinal catarrh that come to the notice of the practitioner, which are difficult to diagnosticate, occur in persons in civil life, beginning with a diarrhœa of moderate severity, followed by weakened digestion and constipation alternating with slight diarrhœa, with anatomico-pathological changes in the intestines, involving but a small local area.

Ætiology.—The exciting causes of acute intestinal catarrh are very many; and, in civil life, the ætiological factors depending upon improper diet are the most frequent. Food of bad quality or improperly cooked; an excessive quantity at a meal,

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of varieties that take a widely diversified range of time for normal digestion, gastric or intestinal; crude fruits and vegetables; articles of diet opposed to the idiosyncrasy of the individual; iced beverages taken when the system is heated; acescent or fermented drinks, or any article of food that produces severe mechanical or chemical irritation; these are among the frequent causes of intestinal catarrh. Imperfect mastication can frequently be referred to as the cause of an attack of acute catarrhal irritation and inflammation of the stomach or small intestine. A common cause depends upon the vicissitudes of the weather; as a high temperature prolonged until the general system is debilitated, or cold and damp weather, driving the blood from the surface to the intestines, producing active hyperæmia resulting in a copious effusion into the intestines from the venous radicles, at first serous, afterward accompanied by mucus, forming the sero-muculent dejections. The potency of this ætiological factor I have often witnessed on a large scale in camp-life. Fatigued troops, exposed to a cold rain-storm during the night while sleeping upon the ground, are sometimes attacked on the following day by an almost painless serous diarrhœa, which results in chronic intestinal catarrh.

Chronic intestinal catarrh occurs secondarily from morbid conditions of the stomach, permitting imperfectly digested matters to remain here for an abnormal length of time, and to undergo chemical changes that irritate the intestinal mucous membrane after leaving the pyloric ring, and from diseases of the liver, of the pulmonary system, of the portal circulation, or any abnormal conditions inducing passive congestion of the intestinal mucous membrane. Extensive burns of the skin are sometimes followed by inflammation of the intestines. Failure of the pancreatic secretion will slowly produce catarrhal irritation or inflammation of the intestinal mucous membrane, from indigestion of amylaceous articles of food. Malarial poisoning may also be recognized as an occasional cause of diarrhœa.

Symptomatology.—The symptoms of chronic intestinal catarrh, as a general rule, are not so sharply defined as to prevent errors of diagnosis, particularly when the disease is not of pro-

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nounced severity. The acute form, however, is easily recognized by the ordinary disturbances of digestion suddenly following a surfeit of food or exposure to cold and damp, and by the diarrhœa that generally accompanies it.

Acute pain is rarely present; but, instead, there is a vague general sense of distress in the hypogastrium, extending to the dorsal region; a sense of fullness of the abdomen, and moderate tenderness upon pressure of its walls; loathing of food; a moderate rise of temperature; and a high-colored and scanty urine, irritating in its passage through the urethra.

When there is pain in the right hypochondrium, and bile is vomited, the duodenum is probably implicated; and when the bile is mixed with mucus, accompanied with great thirst, the stomach is involved. The vomiting in the latter case is very often a pronounced symptom, and we can readily understand that the chemical changes of the ingesta, that have necessarily taken place in the small intestine, cause increased peristaltic action and irritation in the large intestine, producing frequent alvine dejections. The stools are composed of serum, mucus, bile, changed epithelial cells, peptones, and indigested food. When tenesmus with mucous dejections and scybala are present, the rectum is involved in the affection.

Chronic intestinal catarrh follows the acute form of the disease; and very often the symptoms of the latter exist in so mild a degree as to pass unheeded as trivial, until the chronic form becomes insidiously established. Abnormally increased peristaltic action is an essential factor in the production of diarrhœa, and this is often irregular, weakened, and slower than normal, especially in cases of long standing; diarrhœa, therefore, is not a necessary symptom of chronic catarrh. On the contrary, the number of the alvine dejections is often diminished, alternating in consistence from fluid to semi-solid or solid stools. Occasionally mucus occurs in the dejections in the form of coherent masses, or in cylindrical casts of the intestines, of from one to several inches in length, with colicky pains. This form and quality of the dejections occurs in nervous females, and I have noticed the same in the male. Stools composed of

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mucus, almost or entirely unmixed with fæcal matters, and attended with tenesmus, are diagnostic of rectal catarrh. Abdominal pain is not a strongly marked subjective feature, except at times when the colon is temporarily obstructed by hardened fæces; but, on the other hand, a sense of pressure from fullness and a dull, unpleasant sensation, not amounting to pain, is felt in the abdomen. When pain is very pronounced, it quite accurately points out the special seat of inflammation, as in the cæcum, flexures of the colon, or the rectum.

The colon may be the seat of a greater number of pathological changes of structure that can be tolerated than the small intestine, as the colon is concerned in digestion in a slight degree only. Its normally slow peristaltic movements and sharp anatomical flexures combine, in cases of chronic disease, to weaken its functional efficiency, permitting the impaction of fæces that irritate the mucous membrane, and creating new points of catarrhal inflammation aggravating and extending those already existing.

A symptom or sign of no little significance relating to the transverse colon, in chronic intestinal catarrh, is its displacement downward out of its normal position in the abdomen. This is attended with a transverse depression of the abdominal walls at or immediately above the umbilicus; and dullness on percussion over the displaced bowel, when filled, will confirm the diagnosis. The abdomen below the umbilicus is tumid and overhanging. In eighty-one ex-soldiers of the late war, with chronic diarrhœa of twenty years' duration, whom I examined for the purpose of rating their degrees of physical disability, I found forty-two with this physical sign strongly pronounced. All were suffering from the effects of chronic intestinal catarrh; the greatest number being reduced in weight to less than two pounds to the inch in height.

Patients suffering with chronic intestinal catarrh are frequently disturbed by melancholy and hypochondriasis, anæsthesia or hyperæsthesia of the skin, paresis of the muscles, and darting pains in the legs and feet, resembling those occurring in the earlier stages of locomotor ataxia.

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The diarrhœa of infants at the period of the first dentition may be considered in the number of first causes of chronic intestinal catarrh, in no small ratio of the cases found in adult life. Irritation of the nervous system from teething, as well as fright or other psychological conditions, may act as a cause of acute intestinal catarrh. The production of diarrhœa by teething seems to be conservative, by removing the irritating ingesta from the intestines. If relief be not obtained early by this means, the colon becomes implicated in the first of the series of ætiological factors leading to pathological conditions of this bowel that often become obstacles to complete recovery; especially, if the hygienic and dietetic treatment be defective. By the additional causes of damp, cold weather or insufficient clothing, active congestion of the gastro-intestinal mucous membrane is produced, which is recognized by increased temperature, vomiting, thirst, sero-mucous discharges of a yellow or greenish color from the bowels, with indigested casein or other articles of food, accompanied by a suppressed outcry or moan occurring with each expiratory act. When increased peristaltic action has not extended the colon, a distended or tympanitic condition of the abdomen ensues, due to putrefaction of the albuminoids in the intestines. This is symptomatic of approaching extension of the catarrh to the rectum, with the attendant tenesmus.

Diagnosis.—The diagnosis of catarrhal inflammation of the intestines is usually not attended with as much difficulty as is experienced in locating the part involved, as between the small and the large intestine. When there has been for a few days gastric disturbance, with icterus duodenalis, tenderness and tumidity of the hypogastrium, more pronounced to the right of the mesial line, and alvine dejections composed of altered bile, mucus, and unchanged ingesta of the hydrocarbonaceous class, we may reasonably conclude that the small intestine is the seat of disease. When we observe a sense of weariness, a dull, heavy pain in the lumbar and sacral regions, tumidity and sense of pressure in the lower portion of the abdomen, with scanty, highly-colored urine, the dejections characterized by scy-

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bala covered with mucus, alternating with a mixture of fœtid mucus and undigested particles of food with a small quantity of blood, and attended by tenesmus, the large intestine is the seat of catarrhal inflammation.

The chronic form is characterized by diminution of strength and weight, constipation, a tumid or a tumid and pendulous abdomen, and, in some cases, disturbances of the sensory nerves of the skin and muscles, indicated by hyperæsthesia or anæsthesia. In other words, when the clinical history shows an attack of acute diarrhœa, several months or years before, followed by a train of general dyspeptic symptoms, with alternating constipation and diarrhœa, uneasiness in the hypogastrium one and a half or two hours after meals, accompanied by flatulence, weary, aching, or rheumatoid sensations in the lumbar muscles, dizziness, disturbed sleep, the tongue thick, foul at the base, with exaggerated papillæ and frequently gashed or fissured, irregular appetite, and generally craving for hot, pungent articles with the food at meals, and general mental despondency, it is quite safe to diagnosticate chronic intestinal catarrh.

Again, the disease in question may be secondary; the ætiological factors resting upon diseases in remote organs, important in the general economy, but not in direct or proximate relation to digestion and assimilation. Thus, a general passive hyperæmia of the intestinal mucous membrane may be a result of inefficiency of the heart's action; and a less general or a local impression upon the circulation may be produced by cirrhosis of the liver or by obstruction of some of the principal branches of the portal vein by a tumor. Consequently, it is important to give attention to these organs and systems for diagnostic purposes, when seeking for causes of the disease.

Typhoid fever may be, and often is mistaken for intestinal catarrh, acute or chronic. The differential diagnosis will be aided by the thermometer in noting the range of temperature, and by a mild cathartic having special effect on the colon, for the removal of the semblance of tympanites of the abdomen, which is peculiar to typhoid.

Prognosis.—The prognosis in severe cases of intestinal ca-

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tarrh is unfavorable as regards young children and old persons, the attendant disturbances of nutrition not being well borne by either. It has been estimated that intestinal catarrh constitutes one third of the total number of the affections of childhood; the chief cause operating in the production of the disease being a diet other than the maternal mammary secretion or an improper diet at any period prior to dentition. Proper care and intelligence in this ætiological feature would materially lessen the high mortality-rate.

Non-inflammatory catarrh of the small intestine is amenable to treatment, after the alimentary crisis has been relieved by two or three loose stools, followed by an infusion of beef a few hours before resuming the maternal or other diet suitable to the age of the patient. When the chronic form has become established, the prognosis is unfavorable in infancy and old age alike. In middle life, the prognosis is also unfavorable, not from an early fatality, but from the long continuance of impaired nutrition, and from irritation of the general nervous system due to the anatomico-pathological changes incident in part but mainly to the condition of the large intestine.

Treatment.—Chronic intestinal catarrh, from the first, involves the nutritive powers in progressively-increasing failure, resulting in marasmus, sooner or later, except when, from extraneous causes, an intercurrent disease produces death. Medicines are nearly or quite impotent to cure, and they serve in a palliative way only, in the attendant constipation, flatulence, diarrhœa, and the like, and in the reaction of these disturbances upon the nervous system. To prevent starvation is the work of greatest moment. In this disease, we should seek to throw the greatest weight of burden upon the stomach by the selection of food from the nitrogenous class; namely, fresh beef and mutton in suitable quantities, boiled, roasted, or converted into soups seasoned with pepper and salt, raw oysters, fresh fish, the white meat of fowls broiled, and milk, when it digests without leaving an unpleasant sense of distention in the hypogastrium one or two hours after being taken into the stomach. A small quantity of stale, light bread, made from

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wheat-flour, may be taken if it be thoroughly masticated and insalivated. When the stomach is weakened, digestion may be aided by a solution of pepsin in combination with dilute hydrochloric acid. Suitable quantities of gentian or ipecacuanha may be given to excite the peptic glands to increased action. The peptonized extract of beef, representing the entire substance of the meat, may be used for a short time, when an irritable condition of the stomach exists, repugnance to the taste and the lack of normal distention of the stomach being the chief objections to its use. We are more particularly concerned, however, in intestinal digestion and assimilation, since the small intestine has received the initiatory lesions that have finally culminated in chronic catarrhal inflammation involving a part or the whole of the small and large intestines. The digestive forces are more pronounced in the duodenum, and they grow progressively less until the caput coli is reached. The duodenum receives the pancreatic secretion containing a ferment which transforms starch into glucose, and again, there is another principle in the pancreatic secretion, called trypsine, which changes the proteids, that have passed from the stomach into the duodenum, into peptones. In the duodenum, also, by the action of the pancreatic juice aided by the bile, oil is emulsified and is taken up by the lacteals. With this brief and imperfect sketch of physiological digestion occurring in the duodenum, we can readily appreciate how profound the disturbances to nutrition must become, when this part of the intestinal tract is in a state of catarrhal inflammation, partially or totally closing the pancreatic and the choledoch ducts. The logical conclusion, therefore, would be, that it is not judicious to select food from the class of hydrocarbons, when the duodenum is in a state of acute inflammation. When the small intestine below the duodenum is in a condition of catarrhal disease, the normal functions of the follicles of Lieberkuhn are impaired, and intestinal digestion would be still more weakened as regards the amylaceous group of alimentary substances. In this general morbid condition of the intestine, artificial digestion can be employed with great advantage by the use of pan-

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creatine, one and a half or two hours after meals, when solid articles of food belonging to the starchy group have been taken.

Gruels made from any farinaceous articles, with or without milk in combination, adding liquor pancreaticus when the gruel is of the temperature of 130° or 140° F., may be eaten when cool. Baked beans, with the hulls removed by a sieve and subsequently made into soup, treated with liquor pancreaticus in the same way as gruel, will be found to be a palatable food. Gruels treated in this way are, also, proper and convenient for purposes of rectal alimentation. Patients may be sustained many days, or until the crisis of acute gastritis or duodenitis has passed, by the use of pancreated liquid food administered by enemata.

Patients suffering from a mild form of chronic intestinal catarrh, with weakened intestinal digestion and feeble peristaltic action, frequently derive great benefit from the use of a teaspoonful of liquor pancreaticus, with one third of a teaspoonful of bicarbonate of soda (fifteen grains) in water, two or three hours after meals; and a pill composed of aloes, rhubarb, or compound extract of colocynth and extract of hyosciamus at bedtime, for the relief of the constipation, will generally secure pleasing results.

In the more severe forms of the disease in question, next to dietetic measures, the irregular and enfeebled peristaltic action of the large intestine presents the greatest obstacle to a successful and satisfactory treatment; and we are, therefore, compelled to resort to drugs, almost daily, to meet this difficulty. The drugs that may be used either separately or in combination, are very many; but only a small number of the established remedies are necessary, colocynth, calomel, aloes, ipecacuanha, rhubarb, castor-oil, and the like, being generally sufficient.

For constipation mainly limited to the rectum, satisfactory relief may be obtained by enemata of tepid water with the addition of olive-oil; and, when anal irritation is present, resulting from the passage of hardened fæces, the use of injections of tepid water, after the stool, for the purpose of

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removing any remaining fæcal matters, may be employed with advantage.

The bromides, hyosciamus, subnitrate of bismuth, cannabis Indica, atropine, and opium, will be found useful in the management of disturbances of the nervous system. On account of its constipating effects, opium in any form should not be used except when absolutely required.

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INTESTINAL OBSTRUCTION.

By Avery Segur, M. D., of Kings County.

Read November 18, 1884.

A person in ordinary health is seized with pain, more or less severe, in some part of the abdomen. The pain continues, nausea supervenes, and, perhaps, vomiting. Soon tenderness is developed, with moderate distention of the bowels. There may have been previously, constipation, or indigestible food may have been taken, or there may have been exposure to cold, fatigue, etc. Ordinary remedies are taken, and pretty certainly a domestic cathartic. This may excite more pain and vomiting, or quite possibly one or two stools may follow. No relief, however, is obtained, and a physician is called to the case.

A diagnosis is felt to be a necessary precedent to good practice. The patient is examined with due care. No hernia is recognized. No local signs of inflammation are discovered. The evidences of any anatomical or mechanical obstruction are wanting. The previous history of the individual is carefully elicited. It may be that the patient has had similar seizures before, which have, after a doubtful progress, happily passed away, but have left no certain clew to the nature of the past or present attack. The physician finds himself unable to make a diagnosis at this stage of the case, and he is forced to treat the symptoms.

Pain requires anodyne, and morphine is injected under the skin. The bowels require both sedation and evacuation, and ten grains of calomel are administered once and again, or even cathartic pills are prescribed. The bowels do not respond to

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the intention; but, instead of a normal peristole, an antiperistaltic action is produced, and the contents and secretions of the intestines are forced into the stomach, which rejects these as well as the ingesta. Nutrition fails; the kidneys yield a scanty secretion; failing depuration burdens the nervous system exhausted by pain; and inflammatory processes are established.

The patient succumbs to the combination of adverse conditions. Then come a post-mortem and a diagnosis.

It was the instruction afforded by two such post-mortems, made by the writer several years ago, which led him to consider with much interest the treatment of cases in which the symptoms of intestinal obstruction occur, and in which, after careful and competent examination first made, no indications can be obtained for surgical procedures.

The opinions formed have been followed in the hospital-service of the writer for several years, where a considerable number of cases, some fatal, more recoveries, have seemed to justify —the fatal equally with the successful cases—the plan of treatment adopted.

It is the object of this paper in a few words to state this treatment, that the limited experience of one observer may be corrected, and so made valuable by many; and that the considerable number of physicians who, as evidenced by the previous treatment of cases admitted to the hospital, adopt a different, and it is believed injurious, course may be induced to reconsider their early treatment of symptoms of intestinal obstruction. No questions of diagnosis will be discussed, because, if the case be surgical, it is not a question of medical treatment at all, and if medical, in a majority of cases, a treatment must be decided upon in advance of a diagnosis; and perhaps the progress of the case will show more of the good or bad effects of the physician's interference than of the real seat and nature of the original trouble. No space will be given to details of cases, because it is believed that the principles involved and the results obtained may be as clearly illustrated and as faithfully rendered by a general statement.

First.—The indications in cases of intestinal obstruction,

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where the obstruction can not be removed by surgical interference, are: *a.* To allay pain and intestinal spasm, and to subdue all irregular intestinal muscular action. *b.* To give rest to the stomach. *c.* To sustain nutrition, and to maintain the functions of the kidneys, liver, skin, respiration, etc. *d.* To prevent and limit inflammation. *e.* To overcome the obstruction.

Second.—TREATMENT.—The last indication, the overcoming of the obstruction (not necessarily its removal, as in cases of growths in the substance of or attached to inner wall of the intestines, inflammatory adhesions, inclusion of the bowels, incomplete hernia, etc., in which the loss of caliber of the intestine, although permanent, permits ordinarily a passage, but at times from congestion, spasm, or other accidental condition, a more or less obstinate obstruction occurs), is first in importance. All direct means of moving the bowels are avoided from the first. No laxatives or purgatives are employed. It is believed that this should be an invariable rule of practice.

Morphine and atropine, in the proportion of twenty of the former to one of the latter, are steadily employed hypodermically; the amount to be determined by the relief from pain afforded. An enema of four ounces of flaxseed tea is administered every two hours, and care is taken that it is retained.

Nutrient enemata of Valentine's extract of beef, with pepsin, or of defibrinated blood, take the place of every third enema of flaxseed tea. Flaxseed poultices are applied to the abdomen.

The horizontal position is strictly maintained, and sleep and quiet are secured. The stomach has nothing forced upon it, and to that extent it is saved the necessity of irregular action.

This plan is steadily pursued, day after day, until pain is relieved, inflammation, if it have supervened, has terminated, and the bowels act spontaneously.

Third.—The favorable effects, observed by the writer, of the above treatment, most marked in some cases admitted to hospital, after some days of progress under plans of treatment to which cathartics were admitted, have been:

1. Pain is much more under control and with less medicine.
2. Vomiting is less frequent.

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3. Spasm and irregular action are prevented.

4. Strength and nutrition are markedly well supported.

5. The following physiological observations are believed to be established: *a.* Respiration is fully maintained by the atropine, the patients showing, in this respect, a most striking contrast to those in whom morphine is permitted to produce its usual effect on this important vital act. *b.* The rectal enemata at once increase the action of the kidneys and the quantity of urine voided. In this, again, it is very interesting to see the clearer intelligence and improved nervous condition of the patient, who before was passing very little water with consequent blood-poisoning. The action of the kidneys is steadily promoted by the liquids thus introduced and absorbed. *c.* "Intestinal injections of water have a very great influence over the secretion of bile." See Wood's "Materia Medica and Therapeutics," Philadelphia, 1880, third edition, p. 448.

6. The writer has observed, in post-mortem examinations, inflammation and general peritonitis, as he believes, excited by the cathartic treatment adopted to overcome obstructions; for he has seen, in several instances, post-mortem examinations where the anatomical causes of obstruction were identical and irremediable, and where the above plan of treatment was followed, and there was an entire absence of inflammation.

Finally, in general, the observations of this treatment have included cases of intestinal obstruction due to occlusion, where only a segment of the wall of the intestine was incarcerated in an obturator hernia, to annular growths (malignant) in the wall of the intestine, to intussusception, to perityphlitis, and to various unrecognized causes. The general vital condition has been apparently better, the progress less exhausting, and the return to evacuations of the bowels, even where large accumulations have been finally passed, has been easy, spontaneous, and natural.

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THE MANAGEMENT OF CRIMINAL ABORTION.

By William H. Robb, M. D., of Montgomery County.

Read November 18, 1884.

In medicine, the expulsion of the ovum before the sixth month of pregnancy is called an abortion; but in law, there is no distinction of this kind, and the term abortion is applied to the expulsion of the contents of the uterus at any time during gestation before its normal completion. Criminal abortion is one procured intentionally, by means either of instruments or irritating medicines, except in instances in which this is necessary to the preservation of the life of the mother or the child. I extract the following paragraph, pertaining to the history of abortion, from the work of Dr. H. R. Storer: "The practice of destroying the fœtus *in utero*, to say nothing of infanticide, history declares to have obtained among all the earlier nations of the world, the Jews alone excepted, and to a very great extent. Aristotle defended it and Plato. It is mentioned by Juvenal, Ovid, Seneca, and Cicero, and is denounced by the earlier Christians. It was common in Europe through the middle ages, and still prevails among the Mohammedans, Chinese, Japanese, Hindoos, and most of the nations of Africa and Polynesia, to such an extent that we may well doubt whether more have ever perished in those countries by plague, by famine, and the sword."[1] With the many instruments used by the professional abortionist and his willing imitators, all of you who have had even a limited practice must be familiar. To attempt an enumeration of them

[1] Storer and Heard, "Criminal Abortion," Boston, 1868, page 31.

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would be presumptuous on my part. The patent nostrums used by these criminals are almost unlimited in number. For an account of the symptoms as well as the diagnosis of abortion, I refer you to any of our standard works on obstetrics. The symptoms and diagnosis are nearly the same, whether the abortion be accidental or intentional. With propriety I might even refer you to these able authorities for instruction as to the management of criminal abortion, but for the fact that I hope to present some practical points in its treatment worthy of your consideration. I shall confine my suggestions to the management of cases occurring before the fifth month of gestation. During the later months, these cases are very like those of labor at term. The treatment of criminal abortion may be considered under four sections:

1. The best means of controlling hæmorrhage.
2. The safest way of removing the entire ovum.
3. The prevention of septicæmia.
4. The restoration of the woman to health.

To control the hæmorrhage, we have both constitutional and local remedies. The constitutional measures from which we expect most good are the use of ergot and digitalis and, indirectly, brandy and ether. For convenience we should prefer the ergot and digitalis in the form of the fluid-extract. To obtain their immediate effects, it is advisable to administer them in full doses hypodermically. In extreme cases, when a repetition of these drugs is indicated, they should be given hypodermically, at least until the patient has considerably rallied. The brandy and ether required should be administered in the same way and at short intervals. To trust to the slow and uncertain action of medicines given by the mouth, would be dangerous and might prove fatal. In the treatment of abortion, we should advise the use of ergot as soon as possible after the patient is seen, either for the purpose of controlling hæmorrhage or to aid the expulsion of the contents of the womb. We should continue its use until the entire ovum is removed and the uterus becomes well contracted. The very feeble and quick pulse, which is often present, will call for the use of digitalis, brandy, and sometimes

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ether. In each individual case, we must decide, from the condition of the patient, as to the need of either of these remedies and the necessity of their repetition. The local remedies generally advised are various kinds of astringent vaginal injections, bits of ice and snow passed up to the cervix, hot vaginal injections, the tampon, and the tent. Of these, I shall consider the last three as being those on which we should mainly rely. I suggest the use of hot vaginal injections as the first local remedy to be used. Dr. Fordyce Barker claims that they alone are often sufficient to control the hæmorrhage, and I have repeatedly verified his statement. When this measure fails to check the flow, and there has been no evidence of the decomposition of any part of the retained ovum, the cervix being not yet sufficiently dilated to admit of the introduction of the index-finger, we should advise the use of the tampon. The method of introducing the tampon, advised by Sims, is the safest. It should be removed every six hours, and the introduction of a new one should be preceded by a thorough vaginal douche of hot carbolized water. While the tampon may be used in such cases, it must be distinctly understood that, in these very cases, I prefer the use of the tent. This is more efficient in controlling hæmorrhage, and it also aids in dilating the cervix.

For the purpose of introducing the tent, the woman should be placed in the semi-prone position (Sims), and drawn to the edge of the bed. The perineum should be retracted by a Sims speculum in the hand of an assistant. With Emmet's double tenaculum, we seize the cervix by passing its closed blades slightly within the cervical canal; and, with its expanding blades, we can steady the cervix and dilate its canal, thus rendering the introduction of the tent less difficult. One or more tents should be used, as each case may require, and they should not be retained longer than six hours. If we have evidence that decomposition has begun in any part of the retained ovum, we should precede the use of the tent by a thorough intra-uterine injection of hot carbolized water. As but little trouble or delay is caused by the use of the douche, it should be employed immediately before the introduction of the tent. No change in the position of the

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woman is needed. We pass the closed blades of the tenaculum a little deeper into the cervical canal, and, with its expanding blades, we can open, steady and depress the cervix. This facilitates the introduction of the double canula, catheter, or uterine tube, as well as the return flow of the water. When decomposition has taken place in the ovum before dilatation of the cervix, the douche should be given through a double catheter or canula. After the cervix has been dilated, either by the use of tents or by the efforts of nature, we should use the soft-rubber uterine tube which I now present, made for me by Tiemann & Co. Three sizes were originally designed for the treatment of puerperal septicæmia. The smallest is suitable for cases of abortion. It is smooth, soft, and very flexible, ten inches in length, and six sixteenths of an inch in diameter. It has a number of small circular openings near its end, which are so constructed as to permit a backward current.

With the patient in the position before advised, we proceed to use the uterine douche. To accomplish this, we pass into the uterine cavity through the cervix, between the expanded blades of the tenaculum, either the double catheter or uterine tube, which has already been attached to a fountain-syringe filled with hot carbolized water. The bag of the syringe is but slightly elevated above the body of the woman, and the water is allowed to flow freely through the tube during its introduction. By retaining the tenaculum in position, we are able to insure an unobstructed return-flow of the liquid, and the cervical canal is thus dilated and made patulous during the administration of the uterine injection. The escape of the wash is further encouraged by slightly depressing the vaginal portion of the cervix. By this method of using the douche, two sources of danger are almost absolutely prevented; *viz.*, the admission of air into the uterine vessels, and the passage of the fluid into the peritoneal cavity. The fountain-syringe is preferred because it is impossible to employ force in its use. The object of this injection is to prevent the absorption of any putrid substance from within the uterus. That no woman is safe while the least portion of a dead fœtus is retained within the uterus, all will con-

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cede; and this should lead us to empty the womb at the earliest practicable moment. I specially urge this in all cases of criminal abortion. When decomposition has begun in the ovum, we ought to be doubly anxious for its removal; and, even when local inflammations have developed, the plan of treatment should be the same. The expectant treatment is generally tedious, often treacherous, and sometimes fatal. For the removal of the ovum, we have no instrument as safe and useful as the finger. This we should employ as soon as the cervix will admit of its introduction. If the cervix be not sufficiently dilated at the first visit, we should use, for the purpose of dilating it, one or more tents, in the same way as advised for controlling hæmorrhage. Any suggestion touching the use of the finger in either the detachment or removal of fragments of the ovum seems uncalled for; but, even after due perseverance, we may sometimes fail, even when assisted by the relaxing influence of ether. Then it will be necessary to employ the wire-curette or the shield (female blade) of the blunt hook and crotchet; and with these, we can usually detach and remove any retained fragments of the ovum. In using either of these instruments, the woman should be in the same position as advised for her during the use of the uterine douche. With the tenaculum dilating and fixing the cervix as before, we pass the instrument into the cavity of the uterus precisely as we did the uterine tube, and then, by gently sweeping the instrument around, with firm pressure from side to side and from the fundus to the cervix, we easily detach any fragment that might have previously escaped. In the earlier months we should use the curette; but after the third month, we can do better with the shield of the blunt hook and crotchet. After using either of them, we should use an intra-uterine injection as before suggested. This cleanses the entire cavity and stimulates the walls of the uterus to contraction.

With the ovum removed and the uterus firmly contracted, but little remains for us to do locally. Septicæmia, we trust, has thus far been either checked or prevented, and the hot carbolized vaginal douche is all that is required; but, in restoring one of these pale, exhausted, and almost lifeless women to health,

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our resources are often taxed to the utmost. In many instances, it is a long journey, and the way is often obstructed by various complications. Sound principles of hygiene and dietetics, however, are always demanded, with a careful course in therapeutics. Innumerable nervous complications may arise, various sympathetic affections may complicate the case, and pelvic troubles may be developed that would disconcert the most expert gynæcologist.

In conclusion, I wish to draw your attention to the important subject of the prevention of criminal abortion. To succeed in removing this evil, will require the united efforts of the medical profession. Physicians should denounce the abortionist and his patient as guilty of murder. They should warn each applicant of the wickedness of the proposed crime, the great danger to life, and the many distressing ills that may follow.

DISCUSSION.

Dr. Ely Van de Warker, of Onondaga County.—The paper of Dr. Robb is exceedingly timely, as it calls attention to a condition which we are constantly called upon to encounter. That criminal abortion exists in the community, all know; and I am inclined to think that, notwithstanding the most persistent efforts of high-minded medical men, it will continue to exist. The paper has called our attention to what might be done to avert the danger which grows out of loss of blood and of blood-poisoning. I desire to say a few words with regard to the action of ergot upon the uterus at or before the third month. I have never seen any good result from the use of ergot in cases of abortion, especially in criminal abortion. Patients bleed just as seriously after ergotism as without the employment of the remedy; and the reason is, that the uterus is but partially developed before the third month, and has not the machinery of contraction which it possesses later. Hence, before the third month, notwithstanding the free use of ergot, there will not be that firm and solid uterine contraction which averts hæmorrhage. Furthermore,

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uterine contraction produced by ergot at this stage of pregnancy, with the intention of expelling the *débris* and the ovum, is erratic and irregular, and fails to accomplish this purpose. I therefore believe that time is lost in the hope of relieving a case simply by the use of ergot, whether it be employed hypodermically or otherwise. I also wish to call the attention of the Association to the use of the tampon in these cases. Of course, if we be called to a patient at night and have no other means at hand for arresting hæmorrhage, the use of the tampon would be proper; but to rely upon this means of arresting hæmorrhage in such cases, I think is a mistake. There is but one means of relief in cases of abortion at the third month, and that is to free the uterus of its contents. Practitioners have used sponge-tents for effecting this object; but, during the past two years, I have ceased their employment, having found that I could dilate the uterus sufficiently by the uterine dilator to admit of the introduction of the finger, and such dilatation is certainly sufficient to enable one to remove the uterine contents at that period of pregnancy. The os is thus easily dilated, little force is required, and, if the patient be made to inhale half a drachm of chloroform, benumbing sensibility but not producing unconsciousness, we can proceed with the operation almost immediately. The mass which is causing the hæmorrhage and exposing the woman to septicæmia can then be brought down by means of the blunt curette, and this done, our object is accomplished. The more quickly the object can be accomplished, without waiting for the action of tents and ergot, the sooner will the patient be restored to health. Sometimes, after using the curette, the uterine cavity is swabbed out with the tincture of iodine, and thus danger from septicæmia can be averted. This procedure is far superior to dilatation with tents, which require some hours to expand the os.

Dr. Moses C. White, of New Haven, Conn., said that the action of ergot at the third month was not to expel the contents of the uterus, but to cause the blood-vessels to contract, and thus prevent abortion.

Dr. R. H. Sabin, of Albany County, related the following case in illustration of the dangers of the tampon:

A few years ago, I was called, at about four o'clock in the morning, to see a lady who was found to be bleeding excessively, the

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hæmorrhage, as I was told, having begun four hours before. The woman, who had fainted from great loss of blood, was suffering severe pain. Hypodermic injections of morphine seemed to control both pain and hæmorrhage. The physician who had first been sent for arrived the next morning and introduced a tampon composed of strips of cloth wet in cold water. That night they allowed the tampon to remain in the vagina, through fear that its removal would cause a return of the hæmorrhage. I was again called at midnight, when the patient was complaining of severe pain and a feeling over the lower portion of the abdomen as if she were "all gone." I was informed that there had been no hæmorrhage. The tampon was removed immediately, and stimulants and nutritious food were administered. The next morning, we visited the patient together and found her dying. The fundus of the uterus had been ruptured from one Fallopian tube to the other. Some months before, this patient, who was nearly fifty years of age and thought she was passing the menopause, visited me, complaining of morning sickness and certain other symtoms, and asked if I thought she was pregnant. I told her I thought it was not at all probable that she was pregnant, but that it was likely some uterine irritation was the cause of her symptoms, and I proposed an examination. But she refused, and went to a neighboring physician, who first treated her for symptoms of colic, and, finding that no relief was obtained, proposed an examination, which was then consented to. The physician found a fibroid, projecting from the uterus, pushing the mucous membrane of the canal before it, and during the examination this covering burst, and the tumor fell out upon the floor. At the post-mortem examination, the original attachment of the fibroid was discovered, and in addition there was the rupture of the uterus before mentioned.

I believe that tampons, in such cases, unless used with great caution, are sources of danger.

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A CASE OF LEAD-POISONING.

By R. H. Sabin, M. D., of Albany County.

Read November 18, 1884.

November 1, 1883.—I was called at midnight to see R. R., a young man, aged sixteen years, and learned the following: He had taken his place for a dance at a small social party, was seen to leave and behave strangely, and was caught by a friend who kept him from falling. He was taken into a drug-shop, where a physician saw him and administered fifteen drops of aromatic spirits of ammonia, after which he seemed to partially recover and was carried home in a chair by four or five men, twisting and squirming as if in severe pain. I saw him soon after and found him lying on the floor, with pillows under his head, insensible, but with every indication of severe pain in his bowels. I gave him a hypodermic injection of morphine, $\frac{1}{4}$ gr., and atropia, $\frac{1}{60}$ gr., in the abdomen. In a few moments he was quiet and was put to bed, with warm applications to his feet and legs and cold to his head. I then left him for the night. He remained quiet until toward morning, when he began to be restless. I saw him about 8 A. M., still insensible, pulse 96, temperature $98\frac{1}{4}°$, and very restless. The bladder was full, and was emptied with a catheter. I gave nearly a teaspoonful of calomel, which was partly wasted, to be followed by an enema of soap and water. I directed that the head be kept wet with cold water, and gave aconite every hour.

2 P. M.—Bowels not moved; is restless and moans; rolls from one side of the bed to the other; has passed no urine; bladder emptied by the catheter. I gave a tablespoonful of cascara cordial, to be followed with enemata of soap and water. Pulse 90; temperature 98°; still insensible.

7 P. M.—No movement from the bowels or bladder; is restless; moans often; pulse 80; temperature 98°.

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8.30 P. M.—I saw him with Dr. Ferguson, of Troy, and Dr. W. B. Sabin, of West Troy. Pulse 65; temperature 98°; insensible; no movements; gave cascara cordial every two hours, and brandy and water; drew his water, and left for the night.

The patient died about 7 o'clock next morning, thirty-two hours from the time he was first attacked. He had been at work for some time in a paint-shop, rubbing paint on cars. There was the characteristic blue mark along the edge of the gums, indicating lead-poisoning. On the day that he was attacked, he had been painting a house for his father, and complained of feeling cold while at work. His father said his bowels were usually very constipated.

This case was undoubtedly one of lead-poisoning, the symptoms being of an apoplectic character, which sometimes, but very rarely, are observed in this disease. There was probably a rapid effusion on the brain, which produced the insensibility, and which in time began to affect the circulatory centers, as was seen by the rapid fall in the pulse-beats.

Just before the patient died, he had two good movements from the bowels.

No autopsy was allowed.

Two other cases of lead-poisoning occurred among workmen from the same works, both of which recovered.

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CHRONIC MERCURIAL POISONING.

By Charles Buckley, M. D., of Monroe County.

Read November 18, 1884.

In December, 1863, Mrs. K., aged thirty-four years, native of the United States, married, the mother of six children, the youngest being six months old and nursing, presented herself at my office for treatment, with the following history: About two months previous to her calling, she was annoyed by a burning, tickling sensation in the mouth and throat, and a disagreeable taste, which was soon accompanied by cough and slight frothy expectoration, pain in the chest-walls, a sense of pressure and want of breath, palpitation of the heart, and pain and burning in the stomach and bowels, increased on taking food. There was constipation alternating with diarrhœa, and a craving appetite; but solid food caused such distress that it was seldom taken. The above symptoms were accompanied with violent headache, wakefulness, chills and fever, cramps in the limbs, partial loss of muscular power, dizziness, and tremors, the last named being more particularly marked on articulating. The voice was quavering, the facial muscles involuntarily twitching during conversation. The face was full, pale, and puffy, and the whole body large, which caused the lady considerable anxiety, as she was larger in the abdomen than before the last accouchement. Notwithstanding the small amount of food taken, the bodily weight increased. The tongue was large, flabby, with a yellowish-white coating in the center, gradually fading to the edge which was extremely pale. The pulse was 70, temperature 97°, and the respiration 22 and irregular. On physical examination, moist bronchial râles were heard at the root of the lungs, but no dullness on percus-

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sion was observed. Antacids, nervous sedatives, and tonics were prescribed, a specimen of the urine was requested for examination, and the patient was asked to report in a few days.

Having obtained and examined the urine, nothing abnormal being found, an examination of the abdominal and pelvic organs failed to reveal pregnancy, and no disease of the organs could be detected. In the mean time all of the symptoms increased in severity.

Perfect rest and a strictly liquid diet were ordered. Bismuth and oxalate of cerium, for the nausea and burning, and tonics were prescribed. A diagnosis of nervous prostration was made, but I was unable to ascertain its cause. The domestic relations were happy, she "having nothing to disturb her."

Several office-visits were subsequently made. In the mean time, the patient gradually became worse, and, on January 29, 1884, I was called to see her at the bedside. She was then troubled with constant retching and vomiting, and everything swallowed was immediately rejected.

Anti-emetics, ice, champagne, carbonated water, etc., were no sooner swallowed than rejected. Opium or any of its preparations, owing to idiosyncrasy, could not be used. The temperature was 97° and the pulse 100. A cold, profuse perspiration covered the body. The breath was very offensive and could be readily perceived on entering the room. The vomited matter consisted of mucus and bile.

There was great prostration of the nervous system and mental faculties, with wakefulness. Short naps only could be taken, accompanied with frightful dreams and a sensation of falling and impending danger.

The patient continued in the condition described for about six days, being visited twice daily during this period, when a gradual improvement took place in the stomach and intestinal troubles, with slight abatement of the nervous symptoms. When arising, or raising the head from the bed, objects in the room seemed to move and dance around. The visits were continued until February 9th, the condition gradually improving. Solid food in moderate quantities could be taken without distress, and everything pointed to a speedy restoration to health, when it was no longer considered necessary to visit the house, and she was discharged.

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On March 19, 1884, twenty-eight days from the last visit, I was again called to see her and found her suffering with the old trouble. Here was a case of gastric, intestinal, and nervous disturbance of great severity, without any known cause. A general examination was made of the premises, food, water, etc., and nothing was found that would account for the illness. A request was made that the precise date of her bad feelings be stated. She replied that "I was never well since the impression for my teeth was taken."

On further inquiry, I learned that a plate was worn in the mouth night and day, except when removed for cleaning. During the first illness, the plate was removed, but it was replaced and worn again when she recovered from this attack. This seemed to be the cause of the trouble, and my first impression, that there was arsenical or other metallic poisoning, was strengthened. There was the bloating, and the nervous, gastric, and intestinal disorders which characterize the physiological action of arsenic. These abated when the patient was in bed and not wearing the plate, but immediately returned when the plate was replaced. I ordered the plate to be removed, and the patient gradually improved and is now completely restored to health.

Her weight during her illness decreased from one hundred and thirty-six to one hundred and eighteen pounds. The circumference of the abdomen, since the cause of illness was removed, has decreased one third.

The plate was sent to Professor Lattimore, of the Rochester University, for analysis, and his report I append:

STATE BOARD OF HEALTH OF NEW YORK, BUREAU OF CHEMICAL ANALYSIS,
UNIVERSITY OF ROCHESTER, *New York, May 2, 1884.*

Dr. C. Buckley, 363 N. St. Paul Street, city:

DEAR SIR: I have carefully tested for arsenic the sample of urine and the hard-rubber plates of the two sets of teeth, which you submitted to me a few days ago. None of these contain arsenic. The rubber plates yield small quantities of mercury, as a matter of course, when treated with proper solvents.

Very truly yours, S. A. LATTIMORE.

I was surprised to find that my patient was suffering from

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the poisonous effects of mercury, as the symptoms strongly indicated arsenical toxæmia.

It will be observed, from the history reported, that one of the first and most common of the effects of mercury was absent in this case; *viz.*, salivation. Instead of attacking the gums, the metal concentrated its effects upon the nervous system, stomach, and bowels.

Since my experience with this case, I have seen a number of patients who were chronic office-cases—some for months, others for years—whom I looked upon as nervous or semi-hysterical, and whose symptoms were quite similar to those observed in Mrs. K.'s case, but not so severe. They all wore the hard red-rubber plates. I ordered them removed, and in every instance there has been marked improvement in health. It is my opinion, derived from experience during the past year, that as a sanitary measure the wearing of red-rubber teeth-plates, those in which a preparation of mercury is used for the coloring, should be discontinued, and that patients wearing them should be requested to have the articles changed.

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PYÆMIA AND DEATH AFTER OPERATION FOR STRABISMUS CONVERGENS.

By J. J. A. Burke, M. D., of Monroe County.

Read by Title November 18, 1884.

That pyæmia is not, strictly speaking, a disease of rare occurrence, every general practitioner will readily admit. But, so far as my personal knowledge and experience of the exciting causes of this disease are concerned, I have yet to hear of a case arising from so simple an operation as that required for the correction of squint. I therefore take the liberty of calling the attention of the profession to the following unfortunate case in my own experience:

The patient, a spinster, thirty years of age, cheerfully submitted to the operation, notwithstanding the strong opposition that came from two sisters. The degree of ametropia (O. D. 1·5 D. S. V = $\frac{4}{5}$; O. S. amblyopic) having been ascertained, I first operated on the left, or amblyopic eye. Five days after, the tendon of the right eye was divided. Three or four days after the last operation, my patient was seized with well-pronounced symptoms of pyæmia, notwithstanding the strict antiseptic precautions taken at each operation.

The instruments used had been carefully cleansed and disinfected in alcohol.

The offending eye was apparently doing as well as its fellow, until after symptoms of pyæmia had become well developed. The contents of the orbit soon began to grow hard and became painful to the slightest touch, and there were then evidences of serious mischief. The eye-ball was rapidly pushed forward, as in an extreme case of exophthalmic goitre, and my patient succumbed before I could fully realize that she was dangerously ill.

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ERRORS OF REFRACTION; THE IMPORTANCE OF THEIR RECOGNITION AND CORRECTION IN EARLY LIFE.

By H. E. Mitchell, M. D., of Rensselaer County.

Read November 18, 1884.

By errors of refraction, are meant those anomalous conditions of the eye technically known as myopia, hypermetropia, and astigmatism. These, while forming a large percentage of the cases which the eye-specialist is called upon to treat, are but little known to the laity and but indifferently understood by the medical profession at large. Were the public better acquainted with these conditions, it is safe to say that we should see far less frequently than we do the rounded shoulders and contracted chests that are so common among the school-children of the present day and which owe their origin largely to the stooping posture rendered necessary by imperfect vision. That defective eyesight, due to refractive errors, is markedly on the increase, is a fact beyond question. I need not occupy your time in inquiring why this is true. The practical question of to-day is, What can we, as physicians, do to check this growing evil? In this brief paper, I desire to present certain points, bearing upon this subject, for your consideration.

In order that we may clearly comprehend what a refractive error really is, let us consider the anatomy of the eye sufficiently to enable us to understand and recognize any departure from its normal condition.

The perfect, or emmetropic eye is, as you know, nearly round, and, for five sixths of its extent, covered by three coats, or

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tunics. The outermost, or sclerotic coat, is a dense, fibrous, opaque, unyielding membrane that serves to maintain the eyeball in its proper shape, and, at the same time, to afford protection to the more delicate structures within. Upon its integrity and unvarying shape, depends the nice relationship of the various parts which make up this most complicated organ. The middle tunic, the choroid, is vascular and pigmented and is connected with the inner surface of the sclerotic by a fine cellular tissue. From its rich blood-supply, is derived the nourishment necessary for the support of the transparent media within, while its dark pigment serves, not only to prevent the entrance of light except through the pupillary opening, but to absorb any excess that may have there entered. The innermost coat is the retina; and it is upon this delicate nervous membrane that all images of external objects are formed.

At the anterior portion of the eyeball, and continuous with the sclerotic, is the cornea, which, though fibrous, tough, unyielding, and of uniform thickness, is yet perfectly transparent. A short distance behind this, is suspended the iris, which acts as a curtain and is intended to permit only a proper amount of light to enter the eye through its central opening, or pupil. Immediately behind the pupil, is the crystalline lens. This is a double-convex body, measuring nearly a quarter of an inch in its antero-posterior diameter, and retained in position by its suspensory ligament. It is elastic and capable of having its focal power increased by the action of the ciliary muscle, producing what is known as accommodation. The ciliary muscle is firmly attached to the sclerotic at the junction of the iris and choroid and possesses contractile powers in a marked degree. The remainder of the globe is occupied by the vitreous body, a jelly-like, albuminous fluid, inclosed in a hyaloid membrane. Between the cornea and lens, is a space containing the aqueous humor, divided by the iris into an anterior and a posterior chamber which communicate with each other through the pupil. The optic nerve, the special nerve of the sense of sight, together with the retinal vessels, enters the orbit from behind. The opening thus formed in the sclerotic is funnel-shaped, and,

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though strengthened by a number of decussating fibrous bands, is the weakest point in the eyeball. The cornea, crystalline lens, and aqueous and vitreous humors are all transparent, and they constitute what are known as the dioptric media of the eye.

When rays of light enter the normal eye from a distance of twenty feet or more, they are practically parallel, and, passing through the dioptric media, are brought to a focus, not only on the retina, but at its most sensitive part, which is a minute, circumscribed foramen, known as the fovea centralis, or the yellow spot of Sömmerring. This is absolutely essential to perfect vision; and anything which interferes with or prevents parallel rays from being so focused must necessarily render the visual impression more or less indistinct. In the three errors of refraction above mentioned, we have three distinct ways in which this is brought about. These differ from each other in their *modus operandi*, but they produce a common result; namely, defective vision.

In myopia, or, as it is commonly called, near-sightedness, we find an abnormal condition due to elongation of the eyeball antero-posteriorly; and this change of shape is not caused by the bulging forward of the cornea, as is generally supposed, except in rare cases of what is known as conical cornea, but it is due to the posterior portion being lengthened or forced backward. Myopia may be acquired or congenital; congenital in the sense, at least, that weak lungs and throats and brain-affections are transmissible from parents to children.

Carefully prepared statistics, compiled in Europe and more recently in our own country, show a steady increase in the congenital form of this affection with each succeeding generation. The acquired form, however, is by far the more common and dangerous one, and its pathology should be carefully considered and clearly understood.

During childhood, the eye, like other organs of the human body, does not attain maturity. The sclerotic, which, later in life, becomes firm and unyielding, is at this period capable of being distorted by undue pressure; and this change of shape may be brought about by any over-exercise of the muscles which

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control the movements of the eye. Whenever the eye is accommodated for near work, as in reading or study, a corresponding amount of convergence takes place, due to the contraction of the internal rectus muscle, which, through its nervous center, acts in unison with the ciliary muscle by which the change in shape of the lens is effected. As the internal rectus muscle is attached to the sclerotic, it must exert, whenever it contracts, a certain amount of pressure upon the eyeball. This, if too long continued, causes the sclerotic to yield at its weakest point; namely, the optic-nerve entrance. Owing to their close relationship, the choroid is likewise forced back, dragging with it the delicate retina. A clear image can now be obtained only by bringing the object to be examined still closer to the eye; whereupon the increased convergence necessarily causes additional pressure upon the globe. Thus, the very attempt we naturally make to overcome this defect only tends to increase and confirm it. Distant or parallel rays of light ought to be focused on the retina without any effort on our part; but, if the retina be too far back, this, of course, will be impossible, as only divergent rays can then be so focused. Hence it is at once apparent that the rational treatment would be to place a minus, or double-concave glass of proper focal strength before the eye, which will render the parallel rays divergent. The internal rectus, and with it the ciliary muscle, will then be relieved from extra duty, the increased convexity of the crystalline lens will disappear, and undue pressure upon the eyeball will immediately cease. If this treatment be adopted sufficiently early in life, it is even possible that the natural shape of the organ may be in part restored; although, as a rule, to check further deterioration of sight, is all we may hope for. It should, however, be always borne in mind, that myopia in the young shows a tendency to increase, and that, when the inner coats have undergone a certain amount of stretching, permanent and irremediable damage has been done. The moment that acquired myopia is developed, the eye becomes a diseased organ, liable at any time, under excessive or improper use, to suffer, through retinal detachment, almost instantaneous blindness.

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In hypermetropia, we find the eyeball too short in its antero-posterior diameter; and consequently the parallel rays are focused behind the percipient layer of the retina, and thus a blurred image is formed, as in myopia; but there exists a marked difference between the two defects. If the hypermetropia be not of too high a degree, the individual is able to increase the convexity of his lens sufficiently to focus, not only parallel rays, but even the divergent rays from a near object. Hence, in early life, while the lens is elastic and the muscles of accommodation are active, no special inconvenience may be experienced. So soon, however, as the child applies himself to his books or the system becomes enfeebled by disease, the defect becomes at once apparent. The ciliary muscles, which up to this time have acceded without demur to the demands made upon them, now refuse longer to respond to this extra task. If the demand be persisted in, indistinct vision and painful and irritable eyes necessarily result. When the normal eye is directed toward distant objects, the muscles of accommodation are relaxed and the eye is at rest. Not so with the hypermetropic eye. This eye must bring into play these muscles, in order clearly to discern remote objects, and must still further make use of them sharply to define near ones. It is constructed to focus convergent rays only, and convergent rays are nowhere naturally found except as coming from the interior of a myopic eye. Hence, as Jäger tersely puts it, "the fundus of a myopic eye is the only object under heaven which a hypermetrope is able to see without the correction of his ametropia." When this increased degree of accommodation necessary for close work is continued beyond a certain point, we frequently find that these muscles become spasmodically contracted and refuse to relax at all. Then results the condition known as ciliary spasm, which, inasmuch as distant objects are indistinctly seen, so closely simulates myopia that a careless observer may easily be misled.

Still another complication may now present itself to add to the patient's discomfort. When speaking of myopia, I mentioned the fact that increased accommodation was attended by a corresponding degree of convergence; but, inasmuch as in a

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hypermetropic eye there is always present a certain degree of accommodation even when looking at distant objects, it follows that, when the hypermetrope wishes to examine anything close to him, an undue amount of convergence will direct the axis of vision to a point nearer than the object looked at. The image, therefore, will be received upon the retina at points which do not correspond, and diplopia, or a double image, will result. Any attempt to lessen this excessive convergence must be attended by a relaxation of the ciliary muscle, in which case the lens becomes less convex and no longer focuses sharply. In order, therefore, to avoid this duplicate image, one eye must be directed to the object; but in doing this, another nerve-center is brought into play. This center regulates the lateral movements of the eye and causes the external rectus of one and the internal rectus of the other, which heretofore have been antagonistic, to work in unison; and, therefore, as one eye moves outward, the other simultaneously turns inward to a corresponding degree, producing a condition known as internal squint. Persons commonly look upon squint as simply an ugly deformity; but it is more than this. As a general rule, an eye that has squinted for any length of time is practically a worthless eye; for by its non-use, especially in early life, the retina has lost its sensitiveness; and, even though the deformity be removed by operative interference, the amblyopia will persist. How important is it, therefore, for the future comfort of the child, that this refractive error receive early attention; and how easy, in this instance at least, is it to remedy nature's shortcomings and the attendant train of evils! If we give our patient a plus, or double-convex glass, of suitable focal strength, we at once enable him to relax his accommodation for distant objects. His ciliary muscles, no longer constantly contracted, regain their normal tone. The pain and irritability vanish, for the cause has been removed; and the eye becomes practically a normal one, capable of doing its full share of work, without danger or discomfort.

The correction of the remaining refractive error, astigmatism, is somewhat more difficult, presenting, as it often does,

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many complications which require great care and thoughtful study before we can thoroughly master them, but which, when once understood, afford a most satisfactory proof of the great advance that the science of ophthalmology has made in modern times. Astigmatism, as ordinarily met with, is due to variations in the shape of the cornea from its normal form. It may be elongated in one diameter and shortened in another; or it may be longer or shorter in both, but in a different degree; or normal in one, and longer or shorter in the other. In any case, the rays of light emanating from a given point and passing through the cornea are unequally refracted and are not reunited into one point upon the retina. The image must consequently be blurred; and, in the involuntary effort that the individual makes with his apparatus for accommodation to focus for each of these different meridians, the ciliary muscles are so constantly called into play that they become fatigued from excessive action, and asthenopia is added to the patient's discomfort. Strictly speaking, astigmatism is not a separate error of refraction, but rather a combination of the two errors before described. If the cornea project more than is normal, the eye is just as truly myopic as if the posterior portion was forced backward; and hypermetropia in the same way results, whether the eyeball be flattened anteriorly or posteriorly. The glass, however, which will correct the simple hypermetropia or myopia will not answer for hypermetropic or myopic astigmatism; for it must be remembered that only a part of the cornea requires its refraction to be changed. Take, for instance, a patient who is myopic in one meridian, but hypermetropic in the other; now place before such a one a minus glass capable of correcting the myopia, and what is the result? The myopic meridian becomes normal, but the hypermetropic one is rendered still more hypermetropic, and nothing is gained. For astigmatism, then, the glass required will be one that represents a section of a cylinder and not of a sphere. The rays of light, in passing through such a glass, will be refracted only in a plane at right angles to its axis, and, by a combination of these cylindrical lenses, we may use both a plus and a minus glass for the same eye. One pecu-

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liarity of this defect lies in the fact that it is susceptible of recognition and correction only by one who has made the eye a special study. A person who is nearsighted may select a glass from an optician's stock, adapted to his degree of myopia; and even the hypermetrope, if his case be uncomplicated with ciliary spasm, may not err in his selection to any serious extent. Not so is it with one who is astigmatic. Each case must be worked out by itself and be corrected accordingly.

Among the masses, there is undoubtedly a strong prejudice against the early use of spectacles, or eye-glasses; but, as the subject becomes more fully understood, this prejudice will melt away. You would think a surgeon sadly remiss in his duties who attempted to treat a fractured limb without a splint, or a diseased hip without extension, and yet you see cases in your daily practice that stand in urgent need of the relief and benefit that a proper glass alone can afford. One may observe on the streets to-day ten children wearing glasses where only one was noticeable a few years since; but where one is seen to-day ten more ought to be seen, for it is safe to say that, if suitable glasses were prescribed before the age of twelve years, the number of persons affected with refractive errors would soon begin to decrease, and the amount of inconvenience and discomfort, and even of actual suffering, would rapidly be diminished. The practical conclusion, then, is; let the eyes of the young be examined, and, if found defective, provided with suitable glasses so soon as their possessors are old enough to wear them with safety, and until then do not allow excessive reading or study.

The question now presents itself, How shall the general practitioner, who has paid no special attention to ophthalmology, recognize these defects? In reply I suggest, Provide yourselves, first, with an ordinary set of test-types and lines, and second, with an optometer. With the use of the former, doubtless, you are all more or less familiar. Regarding the latter, however, much less is generally known; yet I have found it of so much assistance, not only in verifying a diagnosis but in saving time by at least approximating to the required lens, that, with your permission, I shall exhibit one and explain its uses.

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So far as I know, this form of instrument is not mentioned in any work on ophthalmology; neither do I find it advertised or shown in the catalogue of any instrument-maker. I do not even know to whom the credit of its discovery belongs. The one before you was modeled after one obtained, more than a dozen years ago, from the Royal Ophthalmic Hospital in London, and it is the simplest and most serviceable form of the instrument that I am familiar with. It consists, as you see, of a straight rod, two feet long by three quarters of an inch wide and one quarter of an inch thick, graduated in inches and in fractions of an inch. At one end is firmly attached a semicircular metallic frame in which an ordinary ten-inch double-convex lens is placed. A small clamp, so arranged as to slide back and forth upon the stick, contains a card printed in No. 1, or brilliant type. Closing one eye and placing the ten-inch lens before the other, a young normal eye should read the print with ease as it is moved along from the three to the ten-inch point. If one can not read out as far as the ten point, but can read nearer than the three point, myopia is indicated; if not as far as the ten point and not as near as the three point, astigmatism is probable; if beyond the ten point, hyperopia certainly exists; and if to the ten point but not nearer than the five point, presbyopia may be assumed. In cases of children we can, of course, eliminate this last defect. When more than one refractive error is present, we can not recognize the defect so easily or estimate it so closely; but even then, by careful observation, the exceptions become nearly as instructive as the rules. Suppose that a patient reads easily from the three to the fifteen point. To find the glass which he would require to correct his hypermetropia, we multiply the standard point ten, at which he ought to read, by fifteen, the point to which he actually does read, and divide the product by the difference between the two points; e. g., $10 \times 15 = 150 \div 5 = 30$. A plus $\frac{1}{30}$ glass will therefore correct the hypermetropia. Again, if he read nearer than the three point and less than the ten point, say from two to six, we probably have myopia to deal with, and we make our calculation as follows: multiply his

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punctum remotum, which is six, by the standard point, ten, and again divide by the difference; e. g., $6 \times 10 = 60 \div 4 = 15$. A minus $\frac{1}{15}$ lens will practically correct his nearsightedness. In astigmatism, this instrument is of no service further than that it enables us to arrive at a diagnosis by exclusion. In this defect, we depend principally upon our ophthalmoscope and the test-lines. In presbyopia, we may take the point five as a standard for the near point and calculate as before. If a person can not read nearer than the eight point, then $5 \times 8 = 40 \div 3 = 13$. A plus $\frac{1}{13}$ will therefore be suitable for his reading-glass.

I do not intend to convey the idea, by what I have just said, that any one having a set of test-types and an optometer would be justified in assuming that he is duly equipped and qualified to prescribe glasses for his patients. Those of us who have devoted special study to this branch know that it oftentimes requires all of the many means at our disposal to arrive at a correct solution of the difficulty; but I do think that, by a little attention to and practice with these two inexpensive and easily understood appliances, any physician may satisfy himself whether or not his patient be in need of an examination at the hands of an oculist, and will have it in his power to contribute largely to the solution of this difficult problem presented to us:

What shall we do to lessen the rapidly increasing number of defective eyes among children?

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THE DIETETIC TREATMENT OF DYSPEPSIA.

By Austin Flint, M. D., of New York County.

Read November 18, 1884.

The term dyspepsia is often used in a sense nearly or quite synonymous with the term indigestion. These two terms are defined in Dunglison's dictionary as equivalent. The French dictionary by Littré and Robin and the recent "Dictionnaire usuel" give to each term a distinct definition. In the "Real Encyclopädie," begun in 1880 and completed in 1883, indigestion is not treated of as distinct from dyspepsia, the former being considered as embraced in the latter.

The name dyspepsia, from its derivation, denotes an affection not necessarily involving indigestion. The name signifies difficulty of digestion. Now, digestion may be difficult and attended with more or less suffering and disturbance of the nervous system, the digestive function, nevertheless, being duly and completely performed. Clinical observation shows that dyspepsia, in this sense of the term, occurs without indigestion, the latter term embracing the various forms of disordered digestion. Cases are of frequent occurrence in which symptoms arising from difficult, or, as we may say, labored digestion, are unattended by symptoms that denote any perversion or incompleteness of the digestive function. It may be said, and justly, that dyspepsia is often associated with indigestion, and that the latter can hardly exist without the former; but the point which I wish to make at the outset of this paper is, that the term dyspepsia denotes an affection distinct from, and irrespective of, indigestion, the latter term being considered as denoting an af-

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fection characterized by such symptoms as nausea, vomiting, flatulence, acidity, and diarrhœa, which show the digestive function to be either perverted or incomplete. By late German writers, the affection which it suffices to call dyspepsia is designated as nervous or neurasthenic dyspepsia.[1]

In this brief paper, I must be content with an enumeration of some of the symptoms which belong to the clinical history of dyspepsia. The local symptom referable to the stomach is a sense of weight or of oppression in this region after the ingestion of food. The abnormal sensations are sometimes of an indefinite but distressing character. There may or may not be tenderness on pressure over the stomach. Absolute pain is sometimes felt. These local symptoms are much diminished, and they may disappear when the stomach is free from ingesta. The appetite may be more or less impaired, but it is often not diminished, and not unfrequently it is increased. Patients complain in some cases of what is vulgarly known as a sensation of "goneness."

The symptoms, aside from those which are local, as regards the stomach, relate specially to the nervous system. Patients are depressed, irritable, and hypochondriacal. There is lack of buoyancy, energy, and of both physical and intellectual endurance. Vertigo is a not infrequent symptom. Neuralgic pains in the head and elsewhere are common. Sleep is disturbed or there is insomnia. Disordered action of the heart is of frequent occurrence. Constipation is the rule. There is undue susceptibility to cold. All these symptoms may be measurably explained, in many instances, by co-existing anæmia. The dyspepsia leads to impoverishment of the blood, often because alimentation is reduced below the needs of nutrition, and this condition tends in no small degree to increase the dyspepsia

[1] *Vide* articles by Leube and Ewart in "Verhandlungen des Congresses für innere Medicin," Dritter Congress, Wiesbaden, 1884, together with a discussion by several members of the Congress. Leube has demonstrated the existence of nervous dyspepsia, without any disturbance of gastric digestion, by withdrawing the contents of the stomach at different stages of the process of digestion, and ascertaining, by the use of the stomach-tube, the duration of this process in the stomach of patients suffering with dyspepsia.

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and render it persistent. The symptoms referable to the mind are, doubtless, in part secondary to the dyspepsia; but I have long held the opinion that the mind plays an important part in the ætiology of the affection.

In 1841, I contributed to the "American Journal of the Medical Sciences" a paper entitled "Dyspepsia as connected with the Mind." In that paper, I described the mental disorders often associated with difficult or labored digestion, and I expressed the opinion that these disorders are not entirely effects of dyspepsia and that the causes of this affection may be mental. This view of the ætiology was at the time novel, and, even at the present time, is by no means fully recognized either in theory or practice.

I had been led to regard dyspepsia as, in many instances, referable to the mind, by personal experience. Notable distress attending the process of digestion and accompanied with great mental depression, despondency, and apprehensions, followed a change from college excitements and pleasures to a comparatively solitary life in the country and the beginning of the study of medicine. Instantly, however, on beginning to attend medical lectures in the city of Boston, and coincident with exuberant spirits, dyspepsia disappeared.

At the time when the paper to which I have referred was written, dyspepsia, in New England, prevailed very generally among the classes of society which may be distinguished as educated, or, perhaps, as may be better said, the reading and thinking classes. Exemption from this affection was an exception to the rule. The contrast between that time and the present in this regard is striking. How is this contrast to be explained? The explanation partly relates to the mind as involved in the causation of dyspepsia and partly to dietetics.

A half-century ago, most maladies were supposed to originate in the *primæ viæ*, as the digestive organs were significantly called. It was enjoined upon all who desired to preserve health to watch closely these organs, and to make a constant and careful study of diet with reference to digestion. Dietetics and digestion, next to the weather and politics, furnished the topics

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for common conversation. The evils of the gratification of the appetite for food furnished themes for writers and preachers outside of the medical profession. Moral as well as physical ills were referred to errors in diet, for which the sufferers were held responsible. There are a few at the present day who entertain those ideas which were so common fifty years ago. Within a few months, I have received a sermon by a clergyman, in which a strictly regulated and spare diet is recommended as indispensable, not only to health, but to good morals and religious faith.

The views generally entertained, at the time to which I have referred, largely by physicians and almost universally by non-medical sanitarians, may be summed up in a few maxims as follows: Eat only at stated periods, twice or thrice daily, and never between meals, no matter how great may be the desire for food. Never eat late in the evening or shortly before bed-time. In the choice of articles of diet, carefully select those which reason and personal experience have shown to be best digested; and never yield to the weakness of eating any article of food simply because it is acceptable to the palate. In order to avoid the temptation of overeating, let the articles of food be coarse rather than attractive, and eschew all the devices of the *cuisine*. Always leave the table hungry. Study personal idiosyncrasies, and never indulge in kinds of food which, although wholesome for most persons, are injurious to a few who are peculiarly organized. With reference to this last maxim, bear in mind that "what is one man's meat is another man's poison." In order to secure, as effectually as possible, a proper restriction in the quantity of food, it was recommended by some physicians, and to some extent practiced, that every article be carefully weighed at meal-times, and that a certain quantity by weight be never exceeded. Vegetarianism, or Grahamism was advocated and practiced by many. Total abstinence from drink was considered by a few as a good sanitary measure, compelling the body to derive the needed fluids exclusively from fruits, vegetables, and other solid articles of diet. Restriction in the amount of drink, as far as practicable with regard to the power of en-

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durance, was very generally deemed important, so as not to dilute the gastric juice.

Dyspepsia formerly prevailed chiefly among those who adopted, to a greater or less extent, the foregoing maxims. It was comparatively rare among those who did not live in accordance with dietetic rules. The affection is much less prevalent now than heretofore, because these maxims are much less in vogue. The dyspeptics of the present day are chiefly those who undertake to exemplify more or less of these maxims. It seems to me, therefore, a fair inference that dyspepsia may result from an attempt to regulate diet by rules which have for their object the prevention of the affection which they actually produce. It is to be added that an important causative element involved in the practical adoption of these rules is the attention thereby given to digestion. It is by introspection and constant watchfulness of the functions of the stomach, that the mind exerts a direct influence in the causation of this affection.

The foregoing views of the ætiology of dyspepsia foreshadow the dietetic treatment. Considering the limits to which this paper must be restricted, I can, perhaps, best submit the general plan of treatment which I have for many years pursued, by supposing a hypothetical case.

A patient presents the symptoms which denote difficult or labored digestion, with more or less of the associated symptoms which have been enumerated. We shall assume the diagnosis to have been made positive by excluding gastric ulcer, gastritis, carcinoma, and other lesions of the digestive organs. Renal and cerebral diseases have also been excluded.

I am accustomed then to ask the patient, "Do you regulate your diet?" The answer is generally in the affirmative, and it is often given promptly and emphatically. Then I say: "This is a good reason for your having dyspepsia; I never knew a dyspeptic get well who undertook to regulate diet." The patient is usually not a little surprised at these assertions, and he may take issue upon them. The success of the treatment will depend on the willingness and confidence with which the patient enters upon a reform in dietetic habits. "What system

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of diet do you advise?" is a question which is naturally asked. The answer is, that I have no rigid system of diet to advise, but that food must be taken in sufficient quantity and sufficiently varied to satisfy the requirements of assimilation and nutrition, and that this is not to be done by adopting any fixed rules regulating the amount and the kind of diet. "How am I to be guided?" is a question which naturally follows. The reply is: "Not by theoretical views of alimentation and digestion, no matter how much they may appear to be in accord with physiological and pathological doctrines, but by the appetite, the palate, and by common sense." The patient, if intelligent (as dyspeptics usually are), may be reminded of the fact that nature has provided appetite and the gustatory sense for the regulation of diet as regards quantity and variety. To oppose these natural regulations is to do violence to nature. If the patient be a clergyman, he may be taxed with a want of sufficient reliance on Providence. Providence or nature takes care of digestion, leaving only the claims of appetite and the palate for human oversight.

"But," the patient will be likely to say, "am I not to be guided by my own experience and avoid articles of food which I have found to disagree with my digestion?" The answer is, that personal experience in dietetics is extremely fallacious. An article of diet which may cause inconvenience or indigestion to-day may be followed by a sense of comfort and be well digested to-morrow. A variety of circumstances may render the digestion of any article of food taken at a particular meal labored or imperfect. As a rule, articles which agree with most persons do not disagree with any, except from casual or accidental circumstances, and from the expectation, in the mind of the patient, that they will disagree. Without denying that there are dietetic idiosyncrasies, they are vastly fewer than is generally supposed; and, in general, it is fair to regard supposed idiosyncrasies as purely fanciful. Patients not infrequently cherish supposed idiosyncrasies with gratification. The idea is gratifying to egotism, as evidence that Providence has distinguished them from the common herd by certain peculiarities of constitution.

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Dyspeptics generally have many questions to be answered. They are proverbially "long-winded" in giving a history of their experiences, and inquisitive as regards information from their physicians. Supposing our patient to be a type of this class, a full account of the matters discussed in a consultation would extend this paper to too great length. Suffice it to say that the maxims which have been enumerated as causative of dyspepsia are to be reversed in pursuing the plan of treatment which it is the purpose of this paper to submit. The instructions, abbreviated, will then be as follows:

Do not adopt the rule of eating only at stated periods, twice or thrice daily. Be governed in this respect by appetite; and eat whenever there is a desire for food. Eat in the evening or at bedtime, if food be desired. Insomnia is often attributable to hunger. In the choice of articles of diet, be distrustful of past personal experience, and consider it to be a trustworthy rule that those articles will be most likely to be digested without inconvenience which are most acceptable to the palate. As far as practicable, let the articles of diet be made acceptable by good cooking. As a rule, the better articles of food are cooked, the greater the comfort during digestion. Never leave the table with an unsatisfied appetite. Be in no haste to suppose that you are separated from the rest of mankind by dietetic idiosyncrasies, and be distrustful of the dogma that another man's meat is a poison to you. Do not undertake to estimate the amount of food which you take. In this respect different persons differ very widely, and there is no fixed standard of quantity, which is not to be exceeded. Take animal and vegetable articles of diet in relative proportions as indicated by instinct. In the quantity of drink, follow nature's indication; namely, thirst. Experience shows abundantly that, with a view to comfortable digestion, there need be no restriction in the ingestion of liquids.

It is perhaps needless to say, but in justice to my subject it should be considered, that in these few remarks I have given but a rough outline of the dietetic treatment of dyspepsia, according to the general plan which for a long time I have advo-

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cated, and of the merits of which I am able to speak from a not inconsiderable experience. There are various incidental points of inquiry, and certain qualifications of statements, which a full consideration of the subject would embrace. The ground which I take is, that the diet which in healthy subjects is conducive to the preservation of health is the diet which is desirable in cases of dyspepsia. Restrictions of diet when digestion is difficult or labored, with a view toward adaptation to a supposed diminished functional power of the digestive organs, I believe to be never successful, and injurious in proportion as the restrictions involve diminished assimilation and nutrition. It is a fallacy to suppose that the digestive organs in dyspepsia need rest. Exercise of the different organs of the body tends to the maintenance of their functional capabilities. Some old writer said that the stomach was like a school-boy: unless kept pretty constantly occupied it was sure to get into mischief. There is an important practical truth in this remark. If the stomach behave perversely, like the mischievous schoolboy, the patient should conquer the stomach, and not the stomach the patient. This simile may sometimes be used with advantage in order to make patients not afraid to rely upon their digestive powers.

This paper, on account of the limitation as to time, does not afford an opportunity for the introduction of reports of cases. Were it otherwise, I could cite many illustrations of the success of the general plan of treatment which I have outlined. In some cases which have come under my observation, patients, who had been chronic dyspeptics for many years, found themselves at once cured by adopting a full and varied diet, following nature's indications, taking no thought of what they should eat or what they should drink, and occupying the mind with other topics than those relating to their digestion.

Finally, let us learn a practical lesson from our observations of the class who "live to eat"—the *gourmet* and the *gourmand* —they "who fare sumptuously every day." Dyspeptics are not common in this class. An overstimulated appetite may

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lead to other affections, such as gout, indigestion, fatty heart, etc., but rarely to dyspepsia.

Let us learn another practical lesson from our observations of those who "eat to live," the hard-working laborer or mechanic, who is satisfied with obtaining an ample supply of food, and who has no time to study, by his personal experience, the relations of diet to digestion. Our dyspeptic patients do not belong to this class.

Let us learn still another lesson from our observations of the classes to which our dyspeptic patients belong. They are, for the most part, lawyers, clergymen, physicians, students, teachers, artists, bankers, literary men, and men of leisure. Of persons belonging to these classes, those become dyspeptics who study, from the best of motives, how to live, as regards diet, so that "digestion shall wait on appetite, and health on both"; and for this end they endeavor to regulate diet by watchfulness, personal experience, theoretical notions, or, perhaps, scientific principles.

Let a fourth lesson be learned by observing the results of the dietetic treatment of dyspepsia based on the conclusions to be drawn from the previous lessons.

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A SUCCESSFUL CASE OF NEPHRO-LITHOTOMY FOR CALCULUS-PYELITIS.

By William Watkyns Seymour, M. D., of Rensselaer County.

Read by Title, November 18, 1884.

I report this case on account of the comparatively few instances on record of pure nephrotomy, and in order to contribute my mite to the extension of the field of renal surgery, which is daily assuming more and more importance in practice. It seems very strange that an operation which was so strongly urged in 1622 by Cousinot, of France, should be nearly two hundred and fifty years in gaining recognition as a proper and valuable addition to surgery. Cousinot, in his thesis in 1622, considered the operation a very proper one. Bordeu advanced the same view in 1754; but Masqualier, the same year, rejected it. Rayer admitted nephrotomy as a proper operation in 1839; but the operation, save in cases of previous perinephritic abscess or fistula, was forgotten until 1869, in which year Thomas Smith read a paper before the Medico-Chirurgical Society of London, advocating the operation.[1] The next year, Gunn, of Chicago, and Durham and Bryant, of London, operated. The two former did not incise the kidney, and their operations accordingly remained incomplete. In Bryant's case, the patient lived twenty-two days. This was the revival of the operation, which is even now so infrequent that each case is of great interest.

My patient, E. C. R., a carpenter and pattern-maker, aged fifty-two years, formerly of irregular habits, while a soldier in the late war had malarial fever, several attacks of renal colic, and was discharged for diabetes. At various times, up to 1880, he had

[1] Dictionnaire de Médecine et de Chirurgie. Paris, 1881, vol. xxx, p. 664. P. Marduel. Article "Reins."

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attacks of gravel; and finally, in that year, he had an attack followed by the sudden lodgment of a calculus in the membranous portion of the urethra. Being in his agony unable to procure assistance, he himself, with a pincers applied to the soft parts external to the stone, crushed it so that it could be passed. This was followed by hemorrhage and inflammation. Of the size and weight of the stone, I could get no definite idea. In the August following, he consulted me for difficult micturition and very offensive purulent urine. An examination revealed a stricture in the membranous portion of the urethra, through which I finally succeeded, by packing, in passing a whalebone guide, upon which I introduced a tunneled sound into the bladder. Subsequently I gradually dilated the urethra to No. 24 (French), and with washing out the bladder the urine cleared up and all trouble disappeared for a long time. Gradually the old trouble recurred, and the urine, on standing in a glass preserve-jar, deposited a sediment of pus two inches in depth, and so offensive as to drive every one out of the room where it was exposed. In July, 1883, I performed internal urethrotomy, passed No. 30 (French) and had the bladder washed out as before. A month later he had, while under my care, a severe attack of renal colic, and passed a calculus about the size of a split pea. Soon after, both the patient and myself noticed a fullness in the left flank, which, on examination, was found tender, elastic, and fluctuating. My diagnosis was pyelonephritis from calculus, and I advised incision and drainage of the kidney, with, if necessary, subsequent extirpation of the organ. The patient declined any surgical treatment and hoped to get better. Instead of improving, however, he gradually became worse, the pain becoming so severe as to confine him most of the time to his bed, and the tumor enlarged to about the size of two fists. Early in August, 1884, he desired me to operate for his relief. August 10th, I carefully examined the patient and found the tumor to be about the size stated, fluctuating, elastic, and exquisitely tender. Firm pressure caused pain down the left ureter, extending to the left testicle and down the inside of the left thigh. Subsequent to the examination, the first urine, passed in a quart-glass preserve-jar, deposited, on settling, about two inches of offensive pus, and on it a layer of red blood-corpuscles one quarter of an inch thick. The urine was alkaline, the specific

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gravity 1·015, and albumen, after separating the pus by filtration, was found in considerable quantity. Examination of the sediment showed only pus and red corpuscles, with some triple-phosphate crystals. I operated August 11th, at 1 P. M. The patient was on the right side, with a hair-pillow under the flank. Brandy was given by the mouth and etherization was proceeded with. The patient was a difficult subject to etherize. An incision five inches in length was made along the edge of the quadratus lumborum muscle, and, in order to gain more room, another incision was made in front, parallel to the crest of the ilium and about two inches long. With knife and director, the dissection was carried down to the fatty tissue surrounding the kidney. Through this I tore with the finger-nails and the knife-handle. Owing to contraction of the abdominal muscles, I had great difficulty in pushing the kidney well into the wound, but I finally succeeded, and I introduced a needle grasped by forceps into the kidney, to search for a calculus, the kidney being apparently normal. Not succeeding with this, I tried the smallest needle of a Codman and Shurtleff aspirator, and, thrusting this through the parenchyma toward the renal pelvis, I felt the grating of a calculus. At the same time, there welled through the needle some excessively offensive pus. With the needle as a guide, I passed a curved bistoury into the kidney, through the parenchyma, and made an incision admitting the index-finger. This incision I enlarged by tearing, so as to admit two fingers, giving exit to ten or twelve ounces of offensive pus. The hemorrhage was brisk but was arrested by sponges. In the pelvis of the kidney could now be felt a calculus stopping the ureter. This I attempted to remove with forceps, but it broke at every grasp of the instrument. Finally, it was dislodged, as a mass of calculous fragments, by the finger-nail used as a scoop. This *débris*, when dried, weighed thirty-eight grains. The kidney was then syringed out with a solution of chlorinated soda, 1–20. The wound was thoroughly sponged, and a rubber drainage-tube of three-eighth-inch lumen was introduced into the kidney. The angular prolongation of the wound was closed with a continuous suture of Kocher's catgut, iodoform was dusted into the cavity, and the main wound was closed with three silk sutures. Iodoform was dusted over the wound, and a thick pad of absorbent cotton was placed over all. Owing to the free discharge of urine and pus,

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it was necessary to change the dressings every four hours at first, and at each dressing the wound and tube were washed out with a warm solution of chlorinated soda, 1–20. For ten days, one or two grains in weight of grit were found on the cotton at each dressing. The operation lasted one hour and a half. Shock was marked. Brandy was given by the rectum, and the patient was put to bed with hot bottles to keep up warmth. The evening temperature was 104°, pulse 145; but the next morning the temperature was 99° and the pulse 120. The following table shows the records of the temperature, pulse, urine, and pus:

TABLE SHOWING THE VARIATIONS IN TEMPERATURE, PULSE, URINE, AND PUS.

DATE.	Temperature.	Pulse.	Urine.	Pus.
1884.				
August 11.....	Evening, 7 P. M., 104½°	140	The urine was not measured until August 16.	
" 12....	Morning, 99°.....	120		
	Evening, 99°.....	100		
" 13....	Morning, 99°.....	95		
	Evening, 101°.....	90		
" 14....	Morning, 99½°.....	90		
	Evening, 101°.....	95		
" 15....	Morning, 99½°.....	95		
	Evening, 100°.....	90	Ounces.	Ounces.
" 16....	Morning, 99°.....	85	24	4
	Evening, 100°.....	90		
" 17....	Morning, 99°.....	85	28	4½
	Evening, 101°.....	90		
" 18....	Morning, normal.....	85	24	½
	Evening, 99°.....	85		
" 19....	Morning, normal.....	85	14[2]	2
	Evening, 99°.....	85		
" 20....	Morning, 99°.....	85	20	3
	Evening, 99°.....	90		
" 21....	Morning, —.....	90	20	3
	Evening, 100°.....	95		
" 22....	Morning, normal.....	85	32	4
	Evening, normal.....	90		
" 23....	Morning, 97½°.....	95	29	4
	Evening, 97°.....	90		
" 24....	Morning, normal.....	85	29	2
	Evening, normal.....	85		
" 25....	Morning, 97°.....	95	16	3
	Evening, 97½°.....	85		
" 26....	Morning, 97½°.....	85	32	3
	Evening, 97½°.....	85		
" 27....	Morning, 97½°.....	85	21	None.
	Evening, normal.....	95[1]		

[1] Increased by stimulants.

[2] The day was sultry, and the patient perspired profusely.

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TABLE SHOWING THE VARIATIONS IN TEMPERATURE, ETC.—(*Continued.*)

DATE.	Temperature.	Pulse.	Urine.	Pus.
1884.			Ounces.	Ounces.
August 28....	Morning, normal	85	29	4
	Evening, normal	85		
" 29....	Morning, normal	80	25	2
	Evening, normal	80		
" 30....	Morning, ——	85	28	1½
	Evening, ——	85		
" 31.....	.....	..	32	2
September 1....	.....	..	28	1½
" 2....	.....	..	25	1½
" 3....	.....	..	25	1
" 4....	.....	..	33	1½
" 5....	.....	..	29	1½
" 6....	.....	..	29	1
" 7....	.....	..	25	1
" 8....	.....	..	29	½
" 9....	.....	..	32	½
" 10....	.....	..	33	½
" 11....	.....	..	33	None.
" 12....	.....	..	29	Cloudy on standing.
" 13....	.....	..	21	
" 14....	.....	..	33	
" 15....	.....	..	30	
" 16....	.....	..	33	
" 17....	.....	..	31	
" 18....	.....	..	33	
" 19....	.....	..	33	
" 20...	.....	..	31	
" 21....	.....	..	33	
" 22....	.....	..	33	
" 23....	.....	..	34	
" 24....	.....	..	32	
" 25....	.....	..	31	
" 26....	.....	..	31	

The second day, the patient passed about six fluid ounces of urine by the urethra, but the dressings were drenched, and, after the sixteenth day, the urine and pus were regularly measured. The tube was removed the tenth day after the operation. The convalescence was slow but quite steady, and seven weeks after the operation the patient rode out, and the eighth week was walking, free from pain and in better health than for months before the operation, and constantly improving. There still remains a sinus which discharges about half an ounce of pus daily.

As to the merits of the operation, I am more than satisfied. The question was whether extirpation (nephrectomy) or simple incision and drainage (nephrotomy) should be the operation;

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and I decided upon the latter for the following reasons: First, the far greater danger of primary nephrectomy, fifty per cent dying from the primary operation, according to Mr. Clement Lucas; second, the possibility that nephrotomy would secure the end desired; third, the fact that, in case of failure of nephrotomy, the chances of a successful nephrectomy would be markedly better. This procedure is strongly advised by Mr. Clement Lucas, on the ground that the subsequent removal of the shrunken kidney is far less dangerous, because of the smaller cavity left by the operation, all of his own six cases recovering. As to the loin or abdominal incisions, I should in any subsequent case prefer the loin, whether for the simple incision and drainage or for the extirpation of the organ, because—1. It does not open the peritonæum. 2. That by it room enough can be obtained for the removal of any growth by making, as advised by Billroth, in addition to the incision parallel to the quadratus lumborum muscle, a second incision parallel, at one centimetre's distance, to the crest of the ilium, and extending, if necessary, as far as the spermatic cord. With this incision there is no necessity of excising the last rib and incurring the risk of collapsed lung. 3. By reason of the position of the wound, drainage is favored. 4. There is, with the lumbar incision, no danger of the formation of bands within the abdomen, which may become the cause of intestinal obstruction, as has occurred where, after nephrectomy, the ureter has been stitched into the abdominal wound.[1]

In sounding the kidney for stone, I think the fine aspirator needles are much easier to manipulate than a needle and forceps, being fine, light, and their large shoulder giving a good control of the needle without taking up much room in the wound, as is the case with a needle-holder. The incision should be through the parenchyma, and not through the pelvis; and, although the hæmorrhage is sharp when the kidney-substance is incised, it is easily arrested by sponge-pressure, and tearing to enlarge the wound will greatly lessen the danger from this source.

[1] Morris's discussion of Thornton's paper on "Nephrotomy and Nephrectomy." International Medical Congress. Copenhagen, 1884.

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A SUCCESSFUL CASE OF EXCISION OF THE RECTUM.

By William Wotkyns Seymour, M. D., of Rensselaer County.

Read by Title, November 18, 1884.

I first saw the patient, J. C., August 11, 1884. He is a farmer, aged sixty-six years, always of good habits, and never the subject of a severe illness save an attack of entero-colitis a year ago. His mother had a "cancerous" tumor removed from between the shoulder-blades forty years ago, and died, aged sixty-six, a year later, of its recurrence. A brother's daughter has a cancer of the breast. For a year and a half, the patient has experienced pain and difficulty on defecation, together with a grumous discharge from the bowel, which was attributed to hæmorrhoids; and for six months past the pain had been constant, and so excruciating that the patient besought me to kill him rather than to allow it to continue. Examination under ether revealed irregular nodular masses in the rectal walls, beginning about an inch above the anus and extending almost as high as the finger could reach on the anterior wall, when strong supra-pubic pressure was made. The caliber of the bowel was diminished, but the whole mass was movable, and the perinæum was lax. My diagnosis was cancer of the rectum, and the prognosis, of course, unfavorable. The patient was told that, for the relief of the increasing difficulty and pain on defecation, either curetting, linear rectotomy, or colotomy could be done, but that neither of these operations would remove the disease, although it might prolong life for a considerable time; but that, on the other hand, excision of the rectum, which was much more immediately dangerous, gave a faint chance of cure, or, if

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immediately successful, quite as long relief as either of the other procedures.

The patient decided wisely, I think, for excision, which I proceeded to perform on the 6th of September, 1884. I was assisted by the family physician, Dr. C. A. Winship, of Eagle Mills, and by Dr. John Morris, of Troy, Mr. Hermon Gordinier, medical student, and Mr. David Winship. None of my assistants had ever seen the operation. The patient's bowels had been moved the morning of the operation by injection. Brandy was given by the mouth, ether was used as the anæsthetic, the patient was put in the exaggerated stone position, and the parts were scrubbed with carbolic soap and a nail-brush and then shaved. I then introduced a tampon into the bowel and made an elliptical incision half an inch from the anus, continuing it by incisions in the median line to the coccyx and just behind the scrotum. The posterior portions of the bowel were first freed, and then a sound was introduced into the bladder as a guide for the separation of the anterior wall from the prostate and bladder. All vessels were immediately seized with artery clamps, and the dissection was made with fingers and knife-handle, and, where the tissues were tough, by blunt scissors, between double ligatures. When the artery clamps became too many, the vessels were tied, at first with Kocher's catgut and afterward with silk boiled in a solution of bichloride of mercury. In this wise, little blood was lost, but considerable time was consumed. Much to my gratification, the bowel was easily separated from the bladder, and I finally was able to drag down the gut so as to get an inch of apparently sound tissue above the growth without opening the peritonæum. In this sound tissue, I made a transverse incision and removed the mass, the upper limits of which extended nearly five inches on the posterior wall and four inches on the anterior wall from the anus. During and after the operation, irrigations of the wound with a hot solution of salicylic acid were used. After searching for suspicious tissue in the opening and stopping all oozing, the anterior and posterior median portions of the wound were closed with silk sutures, and the end of the bowel was pulled down and stitched on with silk, a large, rubber drainage-tube being inserted at the posterior part of the wound. Iodoform was dusted over the wound, and a pad of absorbent cotton and T bandage were applied. Shock being marked, brandy was given subcutaneously and by the mouth.

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The patient was put to bed with the trunk elevated, as recommended by Bardenheuer,[1] to favor drainage, and hot bottles were put around him. The operation lasted three hours. The temperature, save once, never rose above 101°, and the urine needed drawing only for three days. On the third day, the bowels were moved on account of flatulence. The patient had no pain and continued to improve from the first. The stitches and tube were removed on the eighth day, and good union was found of all save the posterior quarter of the bowel, where the strain had cut through the stitches. More than two months have elapsed since the operation. The patient has a normal appetite, absolutely no pain, can walk a mile or more, and has gained in flesh and feels much better than for two years preceding the operation.

The wound is now well healed, there is no evidence of recurrence, and the only inconvenience is the incontinence of fæces, which results in five or six movements a day, without warning. However, this incontinence seems to be improving as the wound contracts. Microscopic examination of the excised portion of the bowel showed the growth to be a cylindrical epithelioma. In the ulcerated portions of the growth, all traces of follicles were absent, and the morbid tissue showed an alveolar structure in which were large masses of cylindrical epithelial cells, many of which in their arrangement closely resembled adenoid tissue. In most places the reticulated tissue appeared to be made up of epithelium. In the less involved portion of the bowel, at each limit of the growth, there was infiltration of the follicular and submucous tissue with small, round cells, and in the submucous layer were occasional masses of cylindrical epithelium with gland-like arrangement. The upper limit of the excised portion was apparently healthy. I expect the propriety of the operation will be questioned, and that many will claim that as good if not better results could have been obtained by colotomy or linear rectotomy. Still, from the latter view I must dissent. Modern pathologists quite universally agree that cancer is primarily local; and the results obtained in radical antiseptic operations for removal of cancer of the mamma,

[1] "Zur Frage der Drainirung der Peritonealhöhle," Stuttgart, 1880.

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uterus, and rectum would seem to bear out this proposition. So long as our means of controlling the accidents of excision (hæmorrhage and cellular inflammation) were defective, it is not surprising that colotomy and other temporizing methods were preferred. But now that the means of controlling hæmorrhage in long operations are so perfect, and the measures for controlling infection during and after the operation are so good, the question of the relative value of colotomy and excision of the rectum needs to be studied anew, notwithstanding the brilliant papers of Esmarch and Bryant at Copenhagen. Believing in the local origin of cancer and its slow infecting tendency in many cases, Bardenheuer[1] declares that there are no contra-indications to excision of the cancerous rectum, save immobility of the growth by reason of its size or attachments to the pelvis. Mere linear extent, necessitating the opening of the peritoneum, is, according to Volkmann, Esmarch, and Bardenheuer, no contra-indication. Bardenheuer successfully removed the rectum where the upper limits of the excised portion measured nine and thirten inches from the anus. Volkmann's incision, used in my operation, seems to give plenty of room without removing the coccyx, as is advised by some. When contra-indicated by the immobility of the tumor, excision of the rectum must give place to some form of colotomy, and here again I think modern antiseptic methods will decide eventually for an abdominal rather than a loin incision, with probably the modification suggested by Madeling, of Rostock, of completely severing the bowel and closing the lower severed end with sutures. When we consider the horrible sufferings entailed by cancer of the rectum, and the early age at which many are attacked (a case in a lad of seventeen years came under my observation when house-surgeon in the Boston City Hospital), an operation which promises, in some cases, according to its advocates, immunities of from four to eleven years, at only the expense of more or less incontinence of fæces, deserves a wider acceptance at the hands of the English-speaking world than it has heretofore received. In fact, the cases mentioned by Volkmann and Es-

[1] "Drain. der Peritonealhöhle," Stuttgart, 1880, p. 11.

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march of non-recurrence and comfort for four, six, eight, and eleven years should be regarded as cures, and are encouraging to all who seek to mitigate the horrible sufferings of the cancerous subject. We do not give up hope in cancer of the breast; why should we in cancer of the rectum? As to the incontinence, it is common both to colotomy and excision, with the advantage of ease in maintaining cleanliness and the natural site of the artificial anus in favor of excision.

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DOUBLE SYNCHRONOUS AMPUTATIONS.

By U. C. Lynde, M. D., of Erie County.

Read November 18, 1884.

It has been my object to secure a report of all the grave operations known as double synchronous amputations, by whomsoever made, in this State. I shared with many others the conviction that there would be an innate reluctance on the part of operators in general to report unfavorable results; and I consequently wrote, not only to those who were operating surgeons, but to nearly the whole profession, except in the great cities of Brooklyn and New York where I relied, in the main, upon hospital reports. However, I directed some five hundred letters to members of the profession in these two cities. The text of these letters was as follows:

Buffalo, N. Y., *February 25, 1884.*

Dear Doctor: Will you write me if in your town or vicinity any double synchronous amputations through forearm, elbow, arm, shoulder, leg, knee, or thigh, have been made by yourself or others; and, if so, for what cause, and with what result; giving name in full of parties on whom the amputations were made; also, their present residence, if known to you, and oblige,

U. C. Lynde, M. D., 7 Fitch Building.

By this it will be seen that it was my aim to find out all the cases that had been operated upon, those that had proved successful and those that had not. On the subject of single amputations, our treatises on general surgery have given us very full statistics, from the operations made by military surgeons, and also those made in the hospitals of Europe; to which can be added those reported in more recent works, as having been

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made in the hospitals of our own country, especially those of Philadelphia, New York, and Boston. Statistics have been handed down to us, in some cases for a century; and if they are not what we need at the present day to aid us in our practice, they are certainly not devoid of interest as showing the results of the amputations in past times. I am not aware of any effort having been made in the way of statistics to find out the results of amputations in private practice. Concerning amputations in general, the task would be difficult, and the results, when made, would be unreliable. In securing and preparing for this paper the cases reported by different surgeons throughout the State, little heed has been paid to time, labor, or expense. Grave and important cases have been accepted only upon an abundance of disinterested evidence; evidence often not only of active competitors, but even of enemies in the profession. In some cases that seemed doubtful, or rather admitted of a doubt, I have either written, again and again, to members of the profession living in the particular vicinity or to citizens outside of the profession in the same town. In some instances I visited the places myself. In the cases that have been investigated, conclusive proof has not been wanting of their truthfulness. In concluding this subject, I must acknowledge that not a false report of any case has been sent to me. Except in the great cities of Brooklyn and New York, it is doubtful if many cases have eluded search; and, even in these cities, it is not probable that many have been missed. Considering their size, they are not cities affording many cases requiring these operations. Hospital reports in this State bearing upon these amputations are unreliable. As only three cases have been referred out in the hospitals of Buffalo, I am unwilling to give them to the profession, except under protest. That these are the only operations of this character that have been made at the hospitals in this great railway-city, is barely possible, but is not probable. The cases reported as having been operated upon in private practice in Buffalo probably include all for the last half century. In cities like Rochester, Albany, Syracuse, and Troy, letters were addressed to every member of

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the profession. Hoping and believing that I have secured a report of all favorable results, and almost if not all unfavorable ones, in this State, with the exceptions mentioned, I offer them to the profession as the first reliable gleaning, if not the first attempt to glean the results of the most important operations made in accidental surgery in time of peace in this country. Of the amputations made during the last ten years in Buffalo, now containing nearly two hundred and fifty thousand inhabitants, perhaps ninety-nine hundreths of them were caused by railway injuries. Of those made in the State in the same length of time, it is safe to estimate nineteen twentieths as having had a like cause; and this estimate would probably hold good for most of the Northern States. After railroads, comes modern machinery as a cause for amputations; and after this cause, comes "frost-bite," leaving, as will be seen, the smallest fraction of all the amputations that are now rendered necessary as having been caused by a civilization of fifty years ago. From the diary of one of the most experienced surgeons in former days in western New York, before the time of railways and modern machinery, and published in "The History of the Town of Concord," we find this old hero, as he certainly was, taking a retrospective view of his professional life. The following is his language: "I think I must have treated, during the almost fifty years that I have practiced, some twenty-five or thirty cases of fractured skull; and I must have amputated as many arms and legs." This statement appears in the diary of Bela H. Colegrove, a surgeon who began his practice in 1820 in western New York. From my intimate personal knowledge of the man and of the territory over which he practiced, and from my knowledge of many of his operations, I feel like vouching for the authenticity of his statement; but my object in making this quotation, with my comments, is to show the radical changes that modern inventions have made in the practice of the surgical branch of our profession.

Our manufactories, modes of travel, and internal commerce, have wrought such a change in this branch of our practice, that to-day, instead of making as many amputations as we do

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operations on the skull for fracture, we probably, especially in the older States, make fifty times as many. And as we look into the future, we can see little hope of lessening the accidents which require major amputations. Those that require but the amputation of fingers, a hand, or at most an arm, we can reasonably hope will be greatly lessened by some safer method of coupling cars than by hand. This branch of surgery has increased out of all proportion to our increase in population; and it will continue to increase with the increase of manufactures, travel, and internal commerce. But while these are the sources from which spring so many cripples, they, too, are the sources to which cripples can almost always look for employment that will afford them a good support, however much they be maimed.

It can not be said now, because a man has lost an arm or a leg, or even both arms or both legs, that he might better be dead. In former times, when the peg-leg and the empty sleeve were the only alternatives for a man who had lost a limb, and heavy manual labor the only means of support, the loss of a member often consigned him to penury and want; and especially would the loss of both arms or of both legs deprive him, not only of all means of obtaining a livelihood, but of the ability to walk or to wait on himself. Not so at the present day. Men who have lost both arms drive spirited horses, operate the telegraph or the telephone, act as flagmen, &c., while those who have lost both legs walk our streets without exciting suspicion that they have artificial limbs. They act as engineers, telegraph-operators, book-keepers, and in many other capacities, for which services they obtain not only a support, but accumulate a competency for old age. In our modern civilization, there is something for every man to do, if he will, whether he have limbs or not. While comparatively few of those who graduate at our medical colleges will make operative surgery any considerable part of their practice, the day has gone by when the educated physician can hope, through a lifetime, to steer clear of all connection, direct or indirect, with the question of amputation. Some will aim in the beginning of their professional life to

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secure a surgical practice, especially in amputations. Others will be drawn into it by the people and by their older professional brethren. Others, living on the line of some railway, will of necessity be called to attend those injured at their very doors; and, when not expected to operate, many will be called upon by friends to examine and pass judgment on the propriety of operation. Any man who has ever had the name of doctor will be liable to be consulted upon the question of amputation. So, do what we will, live where we may, the doctor of medicine must know something more about the results, at least, of operations of this character, than the people at large.

RAILWAY-INJURIES.

BOTH THIGHS.

No.	Operator.	Place.	Yr.	Site.	Name.	Age.	Result.
1	S. S. Greene....	Buffalo.....	1881	M. 3d L. 3d	....	..	Death.
2	Avery.....	Rochester ..	1855	L. 3d ..	Burrows.....	8	Recovery.
3	Burr.....	Binghamton.	1879	M. 3d M. 3d	J. Forrey....	24	Recovery.
4	Baldwin.....	Utica	....	....	....	..	Death.
5	Rogers.....	Dunkirk....	....	M. 3d M. 3d	....	58	Death.
6	Montgomery ...	Rochester ..	1847	L. 3d L. 3d	....	8	Recovery.

THIGH AND LEG.

No.	Operator.	Place.	Yr.	Site. Thigh.	Site. Leg.	Name.	Age.	Result.
1	Johnson.....	Waverly....	....	L. 3d	U. 3d	....	..	Death.
2	Weed..... ..	Jordon	1883	L. 3d	U. 3d	....	..	Death.
3	Van Peyma and Pettit.....	Buffalo.....	1878	L. 3d	U. 3d	....	..	Death.
4	Shipman	Syracuse ...	1859	U. 3d	M. 3d	Lewis	18	Recovery.
5	Clark, Churchill, and Roseloom.	Utica	1883	L. 3d	U. 3d	....	..	Recovery.
6	Stockwell.....	Oswego	....	L. 3d	U. 3d	H. Lewis	..	Recovery.
7	Reported by Dr. Waterhouse..	Jamestown..	....	....		....	..	Death.
8	Reported by Dr. Waterhouse..	Jamestown..	....	....		....	..	Death.
9	Radeker.....	Deposit	1878	L. 3d	U. 3d	....	..	Recovery.
10	King.....	New York ..	....	L. 3d	Knee	....	..	Death.
11	Kelsey.....	New York ..	....	M. 3d	Knee	....	..	Death.
12	Stiles and Rogers	Oswego	1883	M. 3d	M. 3d	Thomas.....	12	Death.
13	McLean.....	Troy.....	1882	L. 3d	U. 3d	Kelly.....	50	Recovery.
14	McLean.....	Troy.....	1883	L. 3d	U. 3d	Galnushatz ..	14	Recovery.
15	McLean.....	Troy.....	1883	L. 3d	U. 3d	Nelligan.....	21	Recovery.
16	Lynde.....	Buffalo	1881	L. 3d	U. 3d	Ward.....	26	Death.
17	Lynde.....	Buffalo	1883	U. 3d	U. 3d	Haas	22	Recovery.

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THIGH AND ARM.

No	Operator.	Place.	Yr.	Site.		Name.	Age.	Result.
				Thigh.	Arm.			
1	Bassett	Binghamton	....	L. 3d	L. 3d	....	14	Death.
2	Montgomery	Rochester	1855	L. 3d	L. 3d	....	60	Recovery.
3	Vanzandt	Schenectady	1882	L. 3d	M. 3d	....	..	Death.
4	Miner	Buffalo	1873	....		Cambell	..	Death.
5	Moore	Rochester	....	L. 3d	U. 3d	....	..	Recovery.

THIGH AND FOREARM.

No	Operator.	Place.	Yr.	Site.		Name.	Age.	Result.
				Thigh.	Forearm.			
1	Mercer	Syracuse	1878	L. 3	..	J. Sawyer	18	Recovery.

BOTH LEGS.

No	Operator.	Place.	Yr.	Site.		Name.	Age.	Result.
1	Gould	Lockport	....	M. 3d	M. 3d	Dingman	..	Death.
2	Barrett	Coxsackie	1857	L. 3d	L. 3d	Adams	..	Recovery.
3	Snow	Albany	....	L. 3d	L. 3d	....	Adult	Recovery.
4	Dekay	Parksville	....	M. 3d	M. 3d	Harris	Adult	Recovery.
5	Aikin	Troy	1877	M. 3d	M. 3d	....	Boy	Recovery.
6	Webster	Parksville	1884	M. 3d	L. 3d	Harms	Adult	Recovery.
7	Moore	Rochester	1859	U. 3d	U. 3d	Johnson	Adult	Death.
8	Holt and Smith	Penn Yan	1882	U. 3d	U. 3d	Kritzer	82	Death.
9	Lewis and Beckwith	Ithaca	1883	L. 3d	L. 3d	T. Cleary	29	Recovery.
10	Rogers	Dunkirk	....	U. 3d	U. 3d	....	Child.	Death.
11	Sands	New York	1879	M. 3d	M. 3d	Dr. Pugnet	..	Death.
12	Becker	Fremont	1881	M. 3d	M. 3d	....	..	Recovery.
13	Montgomery	Rochester	1876	U. 3d	U. 3d	....	Adult	Death.
14	Reported by Dr. Booth	Utica	1875	U. 3d	U. 3d	....	..	Death.
15	Cipperly	Troy	1880	M. 3d	M. 3d	....	..	Recovery.
16	Albany Hospital	Albany	1882	M. 3d	M. 3d	....	..	Death.
17	Reported by Dr. King	Machias	1884	U. 3d	M. 3d	Brown	21	Recovery.
18	Bontecou	Troy	1878	U. 3d	M. 3d	Britton	8	Recovery.
19	Baker and Cridler	Hornellsville	1884	U. 3d	U. 3d	C. Pryor	11	Recovery.
20	Ellison	Canesteo	....	L. 3d	L. 3d	Stephens	..	Recovery.
21	Ellenwood	Attica	1882	L. 3d	L. 3d	E. Merrett	32	Recovery.
22	Baker	Wellsburg	1883	L. 3d	L. 3d	A. Morris	..	Recovery.
23	Day	Salamanca	....	M. 3d	M. 3d	G. Wright	..	Death.
24	Reported by Dr. Backus	Rochester	....	L. 3d	L. 3d	....	..	Death.
25	Riesbury	Middletown	....	M. 3d	M. 3d	....	..	Death.
26	Baldwin	Utica	....	M. 3d	M. 3d	C. Titus	..	Recovery.
27	Smith	Auburn	....	L. 3d	L. 3d	....	..	Death.
28	Sturdevant	Deposit	....	U. 3d	M. 3d	G. Space	..	Recovery.
29	Cooper	Troy	....	M. 3d	M. 3d	....	50	Recovery.

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BOTH LEGS.—(*Continued.*)

No	Operator.	Place.	Yr.	Site.	Name.	Age.	Result.
30	McLean.....	Troy.....	1881	U. 3d L. 3d	Spathe.....	18	Recovery.
31	McLean.....	Troy.....	....	U. 3d L. 3d	Vanderheyden	14	Recovery.
32	McLean.....	Troy.....	1882	U. 3d U. 3d	Ryan.....	Adult	Death.
33	Lynde.....	Buffalo.....	1876	M. 3d U. 3d	Lloyd.....	35	Recovery.
34	Lynde.....	Buffalo.....	1882	U. 3d M. 3d	Conners.....	23	Recovery.

LEG AND ARM.

No	Operator.	Place.	Yr.	Site. Leg. Arm.	Name.	Age.	Result.
1	King.....	New York..	....	M. 3d U. 3d	...	..	Recovery.
2	French.....	Amsterdam.	....	M. 3d U. 3d	....	..	Death.
3	Schuyler.....	Troy.....	1884	U. 3d Elbow	Park.....	48	Recovery.

LEG AND FOREARM.

No	Operator.	Place.	Yr.	Site. Leg. Forearm.	Name.	Age.	Result.
1	Plauck.....	Schenectady	....	....	....	70	Death.
2	Ball and Leonard	Albany.....	1873	M. 3d M. 3d	....	..	Recovery.

BOTH ARMS.

No	Operator.	Place.	Yr.	Site.	Name.	Age.	Result.
1	Pardy.....	Elmira.....	1860	U. 3d U. 3d	Crumm.....	..	Recovery.
2	Hamilton.....	Gowanda...	1851	U. 3d U. 3d	Henry.....	..	Recovery.
3	Shank.....	Auburn....	1882	U. 3d U. 3d	....	..	Death.

ARM AND FOREARM.

No	Operator.	Place.	Yr.	Site. Arm. Forearm.	Name.	Age.	Result.
1	Oliver.....	Willsboro..	1876	L. 3d U. 3d	Morrison....	Adult	Recovery.

BOTH FOREARMS.

No	Operator.	Place.	Yr.	Site.	Name.	Age.	Result.
1	Brownell and Beecher.....	Norwich....	1870	L. 3d L. 3d	A. Aldrich...	..	Recovery.
2	Ferguson.....	Troy.....	1868	U. 3d U. 3d	....	17	Recovery.
3	Barton.....	Willsboro..	1878	M. 3d M. 3d	Baker.....	..	Recovery.
4	Burr.....	Binghamton	1873	M. 3d Wrist	Pat. Shea....	25	Recovery.
5	Orton.....	Binghamton	1868	M. 3d M. 3d	Fairchild....	..	Recovery.
6	Ferguson.....	Willsboro..	1875	M. 3d M. 3d	Baker.....	60	Recovery.

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FROST-BITE.

BOTH LEGS.

No	Operator.	Place.	Yr.	Site.	Name.	Age.	Result.
1	Montgomery	Rochester	1848	M. 3d M. 3d	Perkins	Adult	Recovery.
2	New York Hospital	New York	....	L. 3d L. 3d	McGath	50	Recovery.
3	Ferguson	Saranac	1877	L. 3d L. 3d	....	30	Recovery.
4	Sherman	Ogdensburg.	1850	L. 3d L. 3d	J. Canal	..	Recovery.
5	Baldwin	Utica	....	U. 3d U. 3d	Titus	14	Recovery.
6	Reported by Dr. Cipperly	Troy	1857	L. 3d L. 3d	....	.	Recovery.
7	Van Pelt	Buffalo	1874	M. 3d M. 3d	....	..	Recovery.
8	Hunt	Orange Co.	1877	M. 3d M. 3d	Roach	Adult	Recovery.
9	McLean	Troy	1883	L. 3d L. 3d	Coughlin	30	Recovery.
10	Phelps	Buffalo	1880	L. 3d L. 3d	....	..	Recovery.

UNIQUE CASES.

No	Operator and residence.	Yr.	Cause of operation.	Site.	Name.	Age.	Result.
1	Bassett, Binghamton	....	Paralysis after frac. 7th cerv. vertebra	Thighs	....	Adult	Recovery.
2	Tremaine, Buffalo	1873	Frost-bite	Both hands Both feet	....	Adult	Recovery.
3	Muller, U. S. Army	....	Frost-bite	Both hands Both feet	....	26	Recovery.[1]
4	Lynde, Buffalo.	1882	R. R. injuries.	Arms U. 3d L. 3d Leg L. 3d	Powers	22	Recovery.

These tables are founded on written reports now in my possession; and the accuracy of the reports, I do not question. The tables show, in brief, only the name of the operator, the place where the operation was made, the year, the site of the operation, the name of the patient, the age, and the result. Unless the patient was a child or an old person, I have made no effort to ascertain the exact age; and the tables often omit the age, when the patient was an adult. The name of the patient is not always given; in fact, it is frequently omitted, especially when the patient died.

In looking over these tables, which contain reports of ninety-

[1] Bryant, "Practice of Surgery," Philadelphia, 1885, p. 1001.

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two cases, we observe that nineteen twentieths of the amputations were in consequence of railway injuries. A few of the amputations of the upper extremities were for injuries caused by the premature discharge of cannon; while ten cases are recorded of amputation of the legs rendered necessary by frost-bite. The railway injuries were the most serious. Nearly all the cases of amputation of upper extremities, for whatever cause, were successful, the patients recovering.

The cases of amputation for frost-bite were confined to the feet and legs and were successful. Of the thirty-four cases of amputation of the feet and legs for railway injuries, nearly two-thirds recovered. Of the amputations through one thigh and the opposite leg, numbering seventeen, eight recovered. Of the six cases of amputation through both thighs, half recovered; two of the recoveries being boys of eight years of age, and the amputations being through the lower third. The case reported by Dr. Burr was the only one of recovery in an adult. This man was twenty-four years old, and the amputation was through the middle third of both thighs. Of the amputations through the thigh and upper extremity, six in number, one half recovered. Of the amputations of the leg and upper extremity, five in number, three recovered. The only case of amputation of three limbs for railway injuries, both forearms and one leg, recovered. I have placed in these tables two remarkable cases which were operated on outside of this State, both of frost-bite. In each case, both hands and both feet were amputated, and both patients recovered. One operation was performed by Dr. Tremaine, U. S. Army, now of Buffalo, and Professor of Surgery in the Niagara University; and the other was done by Dr. Muller, U. S. Army.

There is no mention in the tables of the methods pursued by the different surgeons in making the amputations; but, by the reports that I have in my possession, it appears that those who have operated the most frequently practiced different methods, according to the characters of the cases. Dr. Leroy McLean, who has made more such amputations than any surgeon in the State, and with the best success, generally practiced the circular operation, but he did not confine himself to this method.

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Dr. Burr, in his remarkable case, practiced the circular method. In four cases of double amputation and the one of triple, I practiced the flap method, four out of the five cases recovering. In the last case, the thigh amputation was made as high as the middle of the upper third, while the amputation through the leg was just below the knee. It is probable that the method of making the covering for the stump has very little to do with the result. The surgeon who adopts the best means for preventing hæmorrhage before, during, and after the operation, who removes every part that might slough, who operates the most rapidly, and, after the operation, makes his patient the most comfortable, while he keeps the stump the cleanest, will have the best results in any considerable number of cases.

No surgeon would think of administering an anæsthetic, with a view of amputating two or more limbs, to a patient whose pulse, voice, and countenance showed him to be already suffering from great shock, whatever the circumstances might be. The anæsthetic and the amputation would be, almost certainly, fatal; for, however skillfully and rapidly performed, these operations produce of themselves a considerable shock to the system. Many of the cases that might justify an amputation, were only the limbs injured, are accompanied by internal injuries which render hopeless the life of the patient; but in those cases in which the limbs are the only parts injured, if the patient be not in a condition that justifies an amputation immediately after the injury, he probably never will be. If the surgeon hope for reaction in these cases, he will generally be disappointed. There are some cases in which parts in addition to the limbs receive injury the effects of which are transient, such as blows upon the head, over the stomach, etc. In these cases, the patients may improve so as to warrant an operation that was not justifiable immediately after of the injury. When a patient's injuries are confined to his limbs, and he is in a condition that will justify their amputation, the sooner the surgeon operates the better. Delay and transportation jeopardize the prospects of recovery.

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THE FUNCTION OF THE AURICLES.

By U. C. Lynde, M. D., of Erie County.

Read November 18, 1884.

The heart is double, consisting of a right ventricle, or right heart, and a left ventricle, or left heart. The two hearts, called respectively the right and left ventricles, though very similar, are unlike in the thickness of their walls; those of the left being more than twice as thick as those of the right. The capacity of the two are the same; each being capable of containing about six fluid ounces. The valves of the two, which serve to prevent the return of the blood after its expulsion from their cavities, are called semi-lunar and are alike; while the respective valves, that admit the blood into their cavities but prevent its escape, are slightly different, that of the right heart being called the tricuspid, and that of the left, the mitral. Each heart has two apertures, making four in all. These apertures are unlike in size. They range as follows, beginning with the smallest: 1, the aortic; 2, the pulmonary; 3, the mitral; 4, the tricuspid. The same quantity of blood passes through all four of these apertures and in nearly the same time, the same time being occupied in its admission into the hearts, and the same time being occupied in its expulsion. A little more time is occupied in its admission than in its expulsion. The forces employed, at the respective apertures, are in inverse proportion to their respective sizes. The left ventricle contracting with more force than the right and expelling during the same time the same quantity of blood, its outlet is, consequently, smaller than the outlet of the right; and as this ventricle will, on account of the greater thickness of its walls,

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return to its normal state, that of dilation, with more force, as a consequence, its suction-power will be greater than the suction-power of the right; and we accordingly find that its aperture, which admits the same quantity of blood in the same time, is smaller than the aperture of the right. The two functions, the production of the systemic and pulmonary circulations, are so important that on their performance depends the life of the organism. That nature has chosen the simplest and the best means will not be questioned. The means chosen consist of two parts, the right and the left ventricles; and all appurtenances to these parts are but means for the carrying out of the two objects stated above. These means are, like the central organs, of the best and simplest kind, consisting of vessels to carry the blood from the heart and of vessels to bring it back again, the cardiac extremities of the latter vessels being called auricles. These auricles are entirely passive, being but the expanded terminations of the veins, and serving, first, as the confluence of the great veins, second, as diverticula to the blood from these veins during the contraction of the ventricles, and third, as reservoirs for the ready supply of blood to the ventricles.

Among the reasons that may be given why the auricles do not contract, are the following: While the veins of the extremities are provided with valves simply to counteract the force of gravity and the tendency that the muscles might have to retard the returning circulation, the great veins emptying into the auricles have none. The terminations of the veins at several sites would hamper the auricle in the act of contracting. The ventricles are surrounded by the pericardial fluid, while the auricles are attached to the pericardium. Polypi can have their growth in an auricle and affect the auricle only by distending its walls, not materially influencing its function. Nearly the whole surface of the auricle in some animals is frequently covered with several times its thickness of fat. Its basilar attachment is nearly as broad as the base of the ventricle. As the auricles have no valves to protect the venous circulation, if they should contract while the heart is sound, their contraction would

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impede the circulation; if, in stenosis of the auriculo-ventricular orifices, they should contract, their contraction would impede the circulation still more; and if they should become hypertrophied, their contraction would again still further impede it. As the auricles are situated on top of the thick, firm, and unyielding bases of the ventricles, with the great outlets into the ventricles, and with the current of blood toward them, aided by a certain suction-power of the ventricles, there is no necessity for any contraction of the auricle in a sound state; while, in extreme stenosis, the force of the auricle would, if it contracted, be mainly spent in driving back the blood upon the returning circulation through the dilated and open mouths of the veins.

There are cases occasionally met with of stenosis and regurgitation at both mitral and aortic orifices; cases in which the blood would be driven back into the left auricle by the contraction of the hypertrophied left ventricle with as much force as it is sent forward into the aorta. Now, in such a case, if a left auricle became hypertrophied, with its force mainly expended upon the blood in the pulmonary veins, it would be almost impossible for the circulation to continue. In aortic obstruction and regurgitation, we find enormously dilated and hypertrophied left ventricles, while the left auricles remain normal. Now, while the left ventricle is receiving regurgitant blood from the aorta by a force which is measured by its tension, for a frail auricle, filled from veins unprotected by valves, to contract with a force sufficient to empty its contents into this ventricle in a half-second of time, is a physical impossibility. In cases of incompetency of the mitral valves, with regurgitation and without obstruction, the systolic impulse is perceptible over an enlarged and dilated auricle, the impulse being caused by the ventricle driving the blood into the auricle; but the auricle, dilated and hypertrophied, with extreme stenosis of the mitral valve, never, by its contraction, causes a perceptible impulse. In a case of extreme mitral stenosis, instead of the obstruction to the circulation being overcome by the hypertrophy of the left auricle, it would only be increased; as nearly the whole force of the auricular contraction would be expended on the

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blood in the pulmonary veins. If aortic regurgitation would cause the dilatation of the thick walls of the left ventricle, what would become of the gossamer-walls of the left auricle, and the still more delicate walls of the pulmonary veins, in a marked case of stenosis and mitral regurgitation, the auricles contracting?

There are cases of incompetency of the tricuspid valve, with regurgitation and without obstruction, in which the blood is made to pulsate distinctly in the jugular vein by the contraction of the right ventricle; but, however extreme be the insufficiency of this valve, and however hypertrophied the right auricle may be, no such impulse is observed following its contraction. In cases of extreme dilatation of the right auricle; with the so-called hypertrophy of its walls; with obstruction in front, at the tricuspid valve, and none behind; with the external jugular so superficial at the root of the neck that every wave in the blood can be distinctly seen and felt; with its proximity to the dilated right auricle, and its direct course; with the patient in the recumbent posture and the auricle full of blood, can a contraction of the auricle be conceived, so delicate that it can not be appreciated? Such a contraction must be no contraction at all.

Upon the relaxation of the ventricular walls, at the close of their contraction, the condition of the ventricles, of the auriculo-ventricular valves, and of the auricles and the veins running directly into them, is as follows: First. The veins and auricles are filled with blood; and this blood has the *vis a tergo*, here as elsewhere in the venous system, urging it on. Second. We have at the base of the auricles a free, open, and spacious outlet for this blood, this outlet leading directly into the ventricular cavity. Third. This cavity has been suddenly created by the elastic rebound of the ventricular walls, a rebound sufficient in force to create a suction-power which the manometer has measured in the hands of reliable observers. Here, then, we have two distinct powers, a *vis a tergo* and a *vis a frontis;* and for what? Simply to pour the blood out of one vessel into another; the two being situated one above the other, and separated only by a cover (the valves) which has been removed. Are not these

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forces and conditions all-sufficient to effect the object? Would not the creation of another force complicate and burden, if it did not subvert, the purpose for which it was intended?

It is a rule in mechanics that unnecessary means for the accomplishment of a purpose not only burdens the machine, but renders it less efficient, if it do not defeat the very object it was intended to serve. Nature never provides unnecessary means. During the time that the auriculo-ventricular valves remain closed, which is while the ventricles are contracting, the mouths of the great veins, including their terminations, the auricles, are filling with blood. This time is estimated as about two fifths of a revolution of the heart. It is well known to be less than half a second. In this short time, the blood is driven, by the contraction of the ventricle, through the ventriculo-aortic opening, overcoming all resistance. A little more time is given to the ventricle to again fill itself. The blood is not collected from various sources; the supply is all ready, and the ventricle has simply to open itself, by the elasticity of its walls, as the walls of a rubber ball spring apart after having been pressed together, in order to again be filled. There is, on the part of the veins and their terminations, the auricles, no force required to empty themselves. There is no force to be overcome; but rather there are in front of them the open and spacious mouths of two thick-walled, empty, hollow organs, the ventricles, drawing by quite a considerable suction-power the blood from these sources. It would not do for the ventricles to rely upon the different veins separately, the right upon the two venæ cavæ and the left upon the four pulmonary veins, for the ready supply of blood to fill them, a supply that must be provided in half a second. And so we have the bulbous extremity, the auricle, a reservoir for these veins to empty into; one that has sufficient capacity to contain all the blood that flows into them during the time the ventricle is contracting and the auriculo-ventricular valve is closed, which, when drawn upon by the ventricles, can supply them quickly. The auricle has as many inlets as there are veins emptying into it, and but one outlet, that into the ventricle. The parts are so arranged as to give the venous system the full

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benefit of the suction-power of the ventricle. The auriculo-ventricular valve being open, the auricle being full, and the mouths of the different veins that empty into it being open, all the suction-power of the ventricle is brought to bear upon the blood.

That the great veins emptying into the auricles are without valves to prevent the reflux of the blood, is strong evidence that the auricles were not intended to contract. In a case of extreme stenosis and insufficiency at the mitral or tricuspid orifice, if we begin with the consideration of the ventricular contraction, we shall find a strong current sent back against the course of the blood in the veins. This, together with the returning blood in the veins beyond, overfills the auricle and the veins at their junction with it; and now the auricle, if contracting upon the blood which distends it, would keep up counter-force to the natural current. Auricular contraction in these cases would furnish a constant counter-force to the natural course of the blood in the veins. It is here that any provision of a compensatory character, in the well-known way of increased development of the muscular structure (hypertrophy) of the auricle, would necessarily increase the obstruction to the returning circulation, exactly in proportion to the extent of the hypertrophy.

Fortunately, however, we find no such hypertrophy, and that for the simple reason that contraction is not a function of the auricle, the slight thickening found in the walls of the auricle in some of these cases being common to the walls of the auricle and veins alike, and only such as the increased tension, caused by their increased capacity and the action of the ventricle, demands. There is in the Museum in Washington a specimen (No. 1536) which shows, in a most remarkable manner, the effect of stenosis and insufficiency at the mitral orifice upon the auricles. Both auricles are remarkably dilated, and both have remarkably attenuated walls, those of the right auricle being no thicker than ordinary brown paper. The history of this case shows that it was one of long standing, the patient having died at the age of forty. The ventricle is hypertrophied. Here is a case in

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which there should have been hypertrophy of the auricles, if these parts contract; but, instead, there is dilatation and attenuation—a condition of things which is never found in cases in which the ventricle is similarly situated as regards increased action. How can an auricle that has become extremely attenuated and dilated to the size of a man's fist fill a ventricle in half of a second through an unyielding orifice less than one third of an inch in diameter, when the opposite outlet is open and spacious?

In the Army Museum can also be seen a large and most excellently preserved collection of hearts showing dilatation of the auricles from various causes. These cases range from the most trifling increase in the capacity of the cavities to the most extreme; and, while the thickness of the walls varies considerably, they can not be said in a single instance to show any more thickening than the veins that empty into them; not a single specimen, either by the thickness of its walls or the character of its texture, showing true hypertrophy resulting from increased action of the part. Hypertrophy proper of the auricles is a myth. We find the same hypertrophy in the veins emptying into the auricles, in varicose veins of the lower extremity, etc. Again, long-continued obstruction of the aortic or pulmonary orifices, without regurgitation, causes hypertrophy of the ventricles only. Why, if the auricles contract, do we not have hypertrophy only of these in cases of like obstruction from disease of the mitral and tricuspid orifices? There are some cases of stenosis of the mitral and tricuspid orifices in which the aperture through which the blood must pass will not much more than admit an ordinary lead-pencil. If a distended and hypertrophied auricle contract upon its contents in these cases, in which direction will the blood be driven; into the ventricle, through this narrow, unyielding aperture, or back through the enlarged and open mouths of the veins upon the returning circulation? Imagine, now, the effects upon the circulation of the additional regurgitation of blood from ventricular contraction. In these cases, if the auricle contract, there must be a strong current sent back upon

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the veins, which is almost continuous, as both the auricle and the ventricle alternately force their blood in this direction. The collapse, first of the veins next to the auricles and then of the auricles, consequent upon their sudden evacuation by the suction-power of the ventricles, has been mistaken for a contraction of the veins and auricles themselves. Nature has provided for a continuous flow of venous blood back to the heart proper, to the ventricle. Has she also provided for a force to subvert her own designs? Of all the phenomena attending the passage of the blood through the cavities of the heart, there is but one active force, the contraction of the ventricles. All the others are caused by this and are passive. Should not auricular contraction be dropped from our nomenclature? It is claimed by physiologists that the auricular contraction immediately precedes the ventricular, beginning when the auricle has within its walls but a trifling amount of blood, and that its contraction drives this blood into the ventricle. In addition to the reasons that have already been given against the theory of auricular contraction is this that can be assigned against auricular contraction thus beginning. All other hollow organs contract in health upon their contents, these serving as stimuli. Here the walls only begin their contraction after their contents have been nearly discharged.

In order to measure the cavities of the heart, and for the purpose of ascertaining the relative size of its inlets and outlets, as well as for the purpose of bringing into view the thickness of the auricles and veins, and more particularly the thickness of the auricular appendages, etc., I took plaster casts of all these parts. I found it a very easy task. Going to a slaughter-house, I procured from several bullocks the hearts with the lungs attached, and, while these were yet warm, I poured the plaster prepared for the occasion into these cavities, through an ordinary funnel or a horse-syringe. The plaster was poured into the cavity in some instances through the veins, and in some through the arteries, according to the cast desired. Among the precautions to be used in taking these casts, are the following: The cavity should not be opened by the knife. In case of the auricle this will require care. The

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heart should be removed from the lung by cutting close to the heart through the lung-tissue. These sections should be made immediately after the lungs and heart have been removed from the animal. The cavities should be rinsed out thoroughly, by means of a syringe and warm water, in a warm room. In case of the auricle, all the points of entrance should be closed by means of a needle and thread, except the one admitting the plaster; and this should be fastened tightly around the nozzle of the funnel or syringe. In case of the ventricle, the plaster should be introduced through the artery, the semi-lunar valves having been removed. Considerable force should be used in filling this cavity, the horse-syringe fulfilling the purpose well. While the heart is being filled with the plaster, it should be held up by an assistant; and afterward it should be suspended in a dry, warm room until the following day, when the plaster will be found sufficiently hard to allow of the removal of the walls by means of a knife and the fingers. In case of the auricles, the translucent covering over the plaster cast of that part termed the appendix should be removed only in part. After a few days, these casts will become firm and hard. I have in my possession a plaster cast of the right auricle, the terminations of the ascending and descending venæ cavæ, and the auricular appendix. The thickness of the covering to the part called the auricular appendix is no more than that of ordinary writing-paper, and this is as distinctly muscular as any portion of the auricular walls. The mere appearance of this covering, considered in connection with its relations to other parts, is sufficient to demonstrate conclusively, to any unprejudiced mind, that it is not intended to constitute any portion of the walls of a contracting organ. This cast also shows that the outlet from the auricle into the ventricle is about four times greater than the outlet from the ventricle into the pulmonary artery.

Both Goltz and Gaule have demonstrated that there is a considerable suction-force exerted by both ventricles at the time of their diastole. Fick, by the use of the manometer, had previously demonstrated the same fact, while he found, by the use of

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this instrument, that the blood-pressure at the mouths of the great veins and in the right auricle was at all times nearly constant; and he believed that the proper function of the auricles was to equalize and keep constant the pressure at the entrance of the great veins into the heart. I have made a large number of experiments upon dogs, for the purpose of ascertaining if there were at any time any such thing as contraction on the part of the auricles. While the heart was acting vigorously, I have penetrated the auricle with all kinds of trocars and canulas, large and small, long and short, and at different sites; and I have failed in every instance to get a jet of blood through a canula, the trocar being withdrawn.

In the case of specimen Number 1536, the auricle being enlarged to the size of a man's fist and as thin as ordinary paper, no one will claim that the ventricle was filled by the contraction of such an auricle; and yet the ventricle must have obtained its blood through an inlet of less than one quarter the size of that through which it is usually filled. In this very case, if the ventricle can obtain its blood by its own action, why not in a normal state, in which the supply comes to it through an opening more than four times as large? Everything goes to show that there is in the auricle no fitful or periodic pressure upon the blood, but the opposite, a steady and equable one. The contraction which begins in the veins and extends through the auricles, in my opinion, was never seen or felt; and it exists only in the ready imagination of observers who are willing to declare a thing to be true which is a necessity to the demonstration of their theories. When the chest of an animal is open and the heart is well exposed, it is difficult to decide which of its motions corresponds to the contraction of the ventricle, and which to its dilation, and Dalton settles this question by the use of the canula. What must be said, then, of the auricle? No structure, not even the veins themselves, is more elastic than the auricles and their appendices. They are easily distended, and, as the force is removed, they readily retract. Like the rubber cushion, they are always in contact with their contents, great or small. All this can readily be demonstrated by introducing warm water by means

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of a syringe and then letting it out. The systole, the contraction of the auricle, is said to begin in the veins. Even if this were so, if any such observation had ever been made, it could be explained by the rapid removal of the blood from these parts into the ventricle; as these are the conditions in which the sudden evacuation of the blood would produce collapse.

The muscular tissue in the auricles has been sufficient to bias the minds of many in favor of the theory of their contraction; and because, like the ventricles, they contain striated muscular fibres, they are supposed, like the ventricles, to contract. The walls of these two cavities are affected very differently by distention; those of the ventricle giving way or breaking under any force sufficient to enlarge the cavity. In fact, the capacity of the ventricle is about as fixed and definite as that of a china-cup or glass-goblet. Not so with the auricles. Their cavities and their walls adapt themselves to little or much force. Their walls, like those of the rubber cushion, are easily distended; and, as the distending body, water, blood, or any liquid, is removed, they readily retract.

DISCUSSION.

Dr. Austin Flint, Jr., of New York County.—It is difficult to discuss extemporaneously a paper the contents of which one is not perfectly familiar with; but I infer, from what I have heard of Dr. Lynde's paper, that it embodies views which are entirely opposed to the generally-accepted doctrines of physiologists concerning the functions of the auricles. I can not indorse the statement made by the author of the paper, that the auricles did not contract; and I beg to state some of the reasons for my belief, as they occur to me at the moment.

In the first place, I have repeatedly seen the auricles contract in experiments on the lower animals. Of course no opportunity has occurred for observing their contraction in the human subject. Again, the auricles, although possessing much thinner walls than the ventricles, are composed of muscular fibres of the striat-

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ed variety, or closely resembling striated muscular fibres. It is well known that, if a muscle be prevented from contraction by having its motor nerve divided, or by being restrained by a splint, it will undergo fatty degeneration and atrophy. No such appearance is observed in the muscular walls of the auricles, the muscular fibres here having the same structure as those found in the ventricles, which are known to contract at stated intervals.

The arrangement of the fibres around the openings of the veins into the auricles is such that, although not provided in man, as in fishes and certain other of the lower animals, with valves, a certain degree of constriction takes place, diminishing the lumen of the veins sufficiently to prevent any considerable regurgitation of blood during the auricular contraction, thus causing nearly or quite all the liquid to enter the ventricles.

Experiments made upon the hearts of dogs, which resemble in structure the heart of man, show, not only that the auricles contract, but observations have determined the duration of the period of contraction. Marey experimented upon dogs, by introducing a hollow sound, provided with two small rubber bags, through the jugular vein into the heart, one of the bags resting in the ventricle and the other in the auricle, and each being connected with a registering apparatus. By this experiment, Marey was able to show that the contraction of the auricles occupies about two tenths of the duration of one revolution of the heart; contraction of the ventricle occupying about four tenths of the period; the remaining four tenths being taken up by the general diastole. These reasons long since led me to the opinion, entertained by nearly all physiologists, that the auricles, although their walls are thinner and less powerful than those of the ventricles, contract, and that they contract as regularly as do the ventricles. The contraction of the auricles, however, is far less important than that of the ventricles, as is shown by the fact that their contractile power may be completely exhausted by repeated stimulation with the electric current, and yet the circulation in the general system continue, although it is somewhat weakened.

Dr. Lynde has spoken of a suction-force exerted by the ventricles. It is possible to demonstrate by experiment either the presence or the absence of any such suction-force. A hollow sound may be introduced through the jugular vein into the right ventri-

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cle, having connected with it a glass tube, one end of which is placed in a vessel containing water. The water will rise slightly in the tube with each inspiration, showing that this act not only tends to draw air into the lungs, but exerts an influence in drawing the blood in the venous system toward the thorax. During the diastole of the heart, however, as has been shown over and over again, there is absolutely no rise of the liquid within the tube, this demonstrating the absence of any so-called suction-force exerted by the ventricles. Some years ago, a German observer, Dr. Baumgarten, advanced the theory that the mitral valves, which are floated out during the diastole of the ventricles, are afterward closed, not by contraction of the ventricles, but by contraction of the auricles.

In conclusion, I must say that I can see no sufficient reasons advanced in the paper for physiologists to change their opinions regarding the functions of the auricles. By the contraction of the auricles, a certain quantity of blood is discharged into the ventricles at each revolution of the heart; and this contraction occurs, under normal conditions, as regularly as that of the ventricles, though less powerfully and occupying but half as much time.

Dr. Austin Flint, of New York County.—About forty or fifty years ago, a Fellow of the Association, whom all know and respect, performed some elaborate and able experiments upon animals of larger size than the dog, with special reference to the study of the action of the different portions of the heart. The report of these experiments made by Dr. Moore and Dr. Pennock, contained a description of the action of the auricles. I can cite two or three facts of a clinical nature which have a bearing on the subject under discussion, but prefer to hear from the physiologists, and hope to hear a word from Dr. Moore.

Dr. E. M. Moore, of Monroe County.—It is true, as Dr. Flint has remarked, that the observations referred to were performed many years ago, in 1838, when the experimenters were still young and enthusiastic; and these constituted some of our earliest contributions to medical science. At that time, we knew little or nothing of diseases of the heart; and the first incentive to study in this direction was a series of experiments made in Dublin, repeated afterward in Philadelphia by Dr. Pennock and myself, and still later by a committee appointed by a London Society.

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During our observations, Dr. Pennock and I used sheep, calves, and one old horse. I can recall these experiments as if they were made yesterday; and I have often repeated them before students, upon sheep, and have plainly demonstrated the contraction of the auricle as has just been stated by Dr. Flint, Jr. The time occupied by the contraction of the auricle was about two tenths of the heart's revolution. It was as easy to see the contraction of the auricle as to observe that of the ventricle itself. During diastole there was, as would be expected, a slight falling back of the auricles, not what would be considered the result of a suction-force, but a dropping back, as it were, into the natural position, the fluid behind flowing into the cavity. Just before the time of the ventricular action, there was a sharp, rapid movement of the auricle; and, when distention of the ventricles had become complete, the muscular walls of these cavities contracted upon their contents. These phenomena could be observed as plainly as any fact in every-day life.

The PRESIDENT remarked that the Association would undoubtedly be glad to hear from Dr. Flint any clinical facts having a bearing upon the question, and especially as to whether the fact that the walls of the auricles sometimes became quite thin argued in favor of their non-contraction.

DR. FLINT remarked that, while he had said the question was a physiological one, it was not purely so, for we occasionally had opportunities to make clinical observations which have a bearing upon it. He thought he could state a fact in clinical medicine which, next to actual observation of the heart itself, showed active contraction of the auricle. The author of the paper had stated that we sometimes observed a jugular pulse, which, if he understood him aright, he referred exclusively to contraction of the right ventricle. In cases in which there was free communication through an incompetent valve between the right auricle and the right ventricle, we had a jugular pulse; a fact which Dr. Flint believed he was first to point out. This jugular pulse, which was perceptible to the eye and to the touch, preceded the contraction of the ventricle, as was shown by comparing the time of its occurrence with the impulse of the apex of the heart, the first heart sound, or the carotid pulse. But sometimes, although not very frequently, we find a jugular pulse due to contraction of the right

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ventricle, and another jugular pulse due to contraction of the right auricle, so that he was accustomed to speak of an auricular and a ventricular jugular pulse. The auricular jugular pulse occurred, in these instances, prior to the pulse in the carotid artery, while the ventricular jugular pulse was synchronous with the pulse in the carotid artery. Again, we sometimes hear a presystolic murmur; and, on account of its loudness in many instances, it is difficult to resist the conclusion that it is due, not to mere passive flow of blood from the auricle into the ventricle, but to an active current produced by contraction of the auricular walls.

Dr. J. W. Ross, of Chemung County, mentioned a case, which he had reported, of rupture of the right auricle, the walls being found at the autopsy to be somewhat hypertrophied, to present some spots of atheroma, with a slight degree of atheroma at the point of rupture, but not sufficient to permit of the accident, unless there had been some force brought to bear by contraction of the auricular walls. He thought there must have been some contraction of the auricular walls to have produced the rupture.

Dr. Lynde, in closing the discussion, said with regard to vivisection, that he had made vivisections on dogs and on sheep, perhaps as often as from twenty-five to fifty times. He brought the animals under the influence of chloroform or of ether, worked his way down to the heart, introduced a canula and trocar into the heart, and he had never succeeded, after withdrawing the canula, in getting blood to well up from the auricle through the short canula, while he had not the least trouble in demonstrating the contraction of the ventricles, blood being discharged through the canula at each contraction of the ventricular walls. He had already referred to a case in the Museum at Washington in which, on account of stenosis at the auriculo-ventricular opening, the walls of the auricle had become extremely thinned, entirely precluding the possibility of muscular contraction, if that were the function of this part of the heart. Again, he had also referred to the fact that there were occasionally found large deposits of fat upon the auricles. Foster, in his work on physiology, claimed that experiments made by himself and by others demonstrated a certain degree of suction-power on the part of the ventricles.

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THE USE OF THE ASPIRATOR IN HYDROTHORAX.

By E. D. Ferguson, M. D., of Rensselaer County.

Read November 18, 1884.

A few years ago, I saw in consultation a young man who had been ill for two weeks. His health had hitherto been good. The history and physical examination showed the disease to be an idiopathic pleuritis with effusion, the right pleural cavity being filled to about the upper border of the second rib in front.

The breathing being somewhat embarrassed, it was thought best to remove some of the liquid, and, accordingly, four pints of clear, light-amber serum were removed by the aspirator. Two days after the aspiration, he had a chill, with considerable increase of fever (which had been very moderate up to that period of his illness), and I again saw him on the fifth day following the operation. The fluid had increased considerably in quantity, and a specimen obtained by the use of the hypodermic syringe showed a notable turbidity. The aspirator was again used, and forty ounces of a moderately turbid and reddish serum were removed. On the sixth day thereafter, thirty-two ounces of a still more turbid fluid were drawn off. At each operation, I attempted to remove all the fluid that could be taken without giving the patient distress in respiration, and the procedure was suspended short of producing marked thoracic discomfort.

It is needless to follow the history of the patient through the separate aspirations for the pyothorax which had then developed, or the drainage of the pleural cavity, which gave an

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apparent recovery (with marked contraction) in about one year, only to be followed by nephritis, a moderate return of the pyothorax, and eventually by death.

This was the third case occurring under my observation in which the management, course, and result had been so nearly alike, that I was led to reflect whether the aspiration had not been an important factor in the production of the pyothorax; and I at once modified my treatment of hydrothorax due to idiopathic pleuritis so far as to abstain from the use of the aspirator unless the dyspnœa, continuous or paroxysmal, due to the effusion, was marked, or the process of absorption was unusually delayed; in either of which instances, however, I have not hesitated to aspirate, although I have discontinued the removal of liquid when operating for dyspnœa, as soon as that symptom had been measurably relieved.

I have not, since I saw the case which forms the text for this paper, removed more than a pint of liquid at one aspiration, either to relieve dyspnœa or to induce absorption; and, although facts of this kind do not go far toward establishing a principle, I have not had an instance of pyothorax the result of simple pleuritis since I have thus modified my operative management of these cases. This fact has had a certain amount of value to me as evidence; for, although I have no data from which to give actual numbers, I annually see in private or consulting practice a considerable number of cases of idiopathic pleuritis with effusion. I do not wish to be understood as denying the occurrence of cases of pleuritis in which there is a direct tendency to suppurate, nor shall I pause here to discuss the nature of such cases. Since using the aspirator in this modified and limited manner, I do not have a larger percentage of cases resulting in notable thoracic contraction than under its more frequent and freer use.

An operation for the removal of intra-pleural effusion, previous to the introduction of aspiration, was regarded as a measure of considerable gravity; and, although the procedure was regarded as justifiable and necessary in certain cases, the liability to the development of pyothorax was fully recognized. Since the publication of Dr. Bowditch's pamphlet, the perform-

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ance of thoracentesis has been advised and practiced as a common and harmless measure for the removal of intra-pleural serum, the security against the entrance of air being the principal assigned reason for the safety of the procedure, while other sources of danger have been quite generally ignored.

Although a few authors, as Dr. Anstie, in Reynolds's "System of Medicine," and Fraentzel, in Ziemssen's "Cyclopædia of the Practice of Medicine," have advised the exercise of some caution in resorting to the operation, with care and moderation in the procedure itself for fear of ultimate injurious effects, particularly the production of pyothorax, by the great majority of recent writers to whose works I have access, no mention is made of this danger. While by a few some general cautions are given, the tone pervading the literature of the subject has seemed to encourage the idea of the innocuousness of the operation, and in many instances I have noted that no reference was made to injurious results. Beginning with the two hundred and fifty or more cases given by Bowditch, and adding other reports, the operation is shown statistically to be safe; although, in quoting from these lists, the care that had been exercised in selecting cases needing the operation and the indications and rules relating to the amount of liquid to be withdrawn are omitted. The only precaution generally enforced has been to suspend the operation "when the patient complains of a constricting pain at the epigastrium," or dyspnœa is produced. It seems evident to me that, when these symptoms result from the operation, the safety of the patient has been jeopardized; for their presence indicates a profound disturbance in the position and relation of the thoracic organs, and, consequently, some plan should be adopted by which the operation shall cease prior to their production.

The rationale of the matter has seemed to me to be the following:

A consideration of the pathology of pleuritis should give due prominence to the condition of vascular supply of the immediate surface of the pleura. Whatever our views may be concerning the migration of the white corpuscles from the

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blood-vessels, the active division of pre-existing cells in and at the surface of the tissues, the introduction of disease-germs from without, and other questions in minute pathology connected with suppuration, it is an accepted fact that, soon after the development of pleuritis and the occurrence of some liquid effusion, there exists on the surface of the pleura more or less fibrinous material, the future history of which is variously determined by the progress of the disease. It may either be absorbed, at least, in a great measure; it may increase to a considerable thickness and result in *plaques* of scar-like tissue; it may enter, more or less directly and permanently, into bands of union between the opposing surfaces; or it may be a contributory element in determining the development of pyothorax. Immediately beneath the adherent layers of this fibrinous material, the nutrition of the pleura is modified, the vascular supply is increased, and apparently an effort is made to organize the new formation by the extension into it of blood-vessels. At all events, whether the vessels at an early date be new or not, the blood circulating near the surface of the pleura, and particularly beneath the layers of fibrin, is contained within vessels having fragile walls, and the conditions, therefore, are favorable to rupture if the intra-vascular pressure be increased. In considering the mechanical effect of aspiration, this condition of the vessels should be kept prominently in mind, as well as the probable existence of layers and bands of fibrin, which may, even at a comparatively early period, prevent the free expansion of the lung on the removal of the liquid.

Having before us a case requiring aspiration, there will be sufficient effusion in the pleural cavity to cause the pressure to be from within outward, or against the free surface of the pleura, and support is thereby given to the fragile blood-vessels; but, when the process of aspiration is begun, this pressure is diminished until, from inability of the lung to move or expand regularly and freely, owing to the plastic material covering its surface or to adhesions limiting its motion in certain directions, if the aspiration be sufficiently continued, the pressure finally becomes from without inward, or toward the pleural cavity. So

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long as this force is expended upon the thoracic parietes, upon the expanding lung through the medium of the bronchi, and upon the other organs within the chest, and it does not exceed the pressure proper for the vessels in the diseased pleura, probably no harm would result; but, when the aspiration is carried to a considerable extent, with inability of the lung to readily follow the outgoing liquid, on simple physical principles, a certain part of the aspirating force will be expended in filling the blood-vessels in the pleura, and from their repletion we have a condition which must influence the future progress of the case. If the congestion thus produced be considerable, it must result in more or less transudation into the pleural cavity; while it also may readily be carried to a point resulting in hæmorrhage, as it did in the case I have related, as shown by the color of the liquid removed at the second aspiration. A hæmorrhage thus induced, even if slight, would doubtless modify unfavorably the soluble fibrin contained in the pleural effusion; for pathologists tell us that the addition of blood to such exudations as we are considering promotes the formation of fibrinous masses; but, whether such speculations be of value or not, if we carry our operation too far, we shall develop or intensify one of the physical conditions connected with inflammation; *viz.*, increased vascular supply; and it is not irrational to suppose that we have thereby increased the probability of suppuration.

To a certain extent, an analogy is furnished in the rapid emptying of the urinary bladder when it has been for some days distended by retained urine, in which case it is a matter of common observation to find the second drawing of urine more or less bloody, and even to have the bladder fill with blood, which may coagulate, and this, when no suspicion of direct instrumental violence can obtain, and without the additional influence due to aspiration, as in the case of hydrothorax. Dr. Gouley has strongly insisted on certain precautions to be taken in emptying a fully-distended bladder; and it seems to me that the same reasons apply with even greater force to the removal of liquid from the chest.

The risk of increasing the inflammatory exudations, I be-

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lieve, can be obviated by removing a moderate quantity of the liquid, this to be left, of course, to the judgment of the operator and to vary according to the object and effect of the operation. When the operation is for the relief of dyspnœa, it should cease promptly on the attainment of that object, and it will probably rarely be necessary to remove more than a pint of liquid; while, if the object be to accelerate delayed absorption, the withdrawal of even a less quantity may suffice, and, from clinical experience, I am satisfied that eight ounces will often be sufficient for one aspiration. Should the removal of so small a quantity not suffice to secure absorption, I should consider the repetition of the operation, even several times, a lesser danger than would be incurred by the withdrawal of a large quantity, while, at the same time, it would give the lung a chance, through the respiratory movements, to modify the bands or incasements which interfere with its uniform and free expansion.

The objections to the aspirator in the hydrothorax of pleuritis do not obtain when the effusion is due to cardiac or renal disease; in which case I can see no valid objection to a complete removal of the liquid, assuming that the operation is demanded and that it is carefully performed; for here the lung is in a condition to follow the escaping liquid, and no leaven of suppurative change is at hand, unless it be introduced through the carelessness of the operator.

I am aware that formidable arrays of successful cases may be and have been presented as illustrating the innocuousness of aspiration in hydrothorax; but it seems to me that this argument is not sound. As well might Keith have pointed to his long and unbroken list of successful cases of ovariotomy and claimed its freedom from risk; but then came the few fatal cases so near together that he reviewed his means and methods and considered seriously whether the measures to which he had ascribed his former success did not contain the principal cause of the recent deaths.

Medicine furnishes many illustrations of the great value of the numerical method in the study of disease and of therapeutic

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measures; but all conclusions based upon numerical data should be subjected to a careful criticism as to whether or not the classification has been complete in all its details.

I recognize in the aspirator an instrument of much value, capable of being used with great benefit; but I also see it as an engine of harm, misery, and death, when used injudiciously. It should never be used for the purpose of emptying and leaving empty a non-collapsing cavity. Its operation is so silent, unseen so far as the actual effect is concerned, and at the same time it does its work so strikingly, that the temptation is to go on with the operation so long as any liquid remains. With the inconsiderate use of the aspirator, I believe it has destroyed more lives than it has saved; for every case of successful aspiration is by no means a life saved.

In another field, where it has been quite commonly used (in pelvic troubles), I regard it as an instrument of special risk, to be used only after a careful consideration of the danger and the possible benefit to be expected.

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A NEW PROCEDURE IN PARACENTESIS THORACIS.

By Thomas F. Rochester, M. D., of Erie County.

Read November 18, 1884.

Those who have often practiced paracentesis thoracis in chronic pleurisy, and especially in empyema, have frequently experienced great difficulty in making a sufficiently large and free opening to admit of the proper placing of drainage-tubes or even of introducing a good-sized trocar and canula through the chest-walls. This is doubtless caused by the approximation of the ribs due to the influence of chronic pleuritis upon the intercostal muscles. To obviate this, various expedients have been resorted to, such as gradual dilatation with sponge-tents and even the trephining or excision of a rib. The writer thinks he has hit upon a method which will overcome the contraction with certainty and safety and will greatly facilitate all necessary local operations. Perhaps a brief account of three cases will present the procedure more clearly to you than a simple description of the method.

Case I.—In September, 1883, I was invited by Dr. Seeley, of Attica, to see Mr. P., a well-to-do farmer, forty-five years of age. He had been ill for three months. I found him sitting up, as he could not lie down on account of dyspnœa. Both legs and both feet were much swollen. He had cough, with muco-purulent expectoration, irregular chills and night-sweats; pulse 100 and irregular; no appetite; percussion-resonance fair over the entire posterior portion of the chest, and flat over the anterior surface of the right side from the second rib downward, with bulging of the intercostal spaces. The percussion-resonance was clear over the left chest anteriorly, except over the præcordial region. The heart-apex was

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in the sixth intercostal space and two inches to the left of a line drawn through the left nipple. On auscultation posteriorly, there was respiratory murmur, with occasional bronchial râles, which were distinct everywhere. Anteriorly, there was bronchial respiration in the right subclavian region as far as the third rib. Below that point there was no respiratory sound whatever. Puerile respiration was marked in the left lung.

The diagnosis was sacculated empyema. A large and long hypodermic needle, with the syringe attached, was passed between the fifth and sixth ribs, anteriorly, on the right side, and the syringe was filled with thick, white, odorless pus drawn from the chest. Paracentesis was decided upon. A sharp-pointed bistoury was inserted close to the upper border of the sixth rib, and an incision two inches long was made in the intercostal space. A very slight purulent discharge followed. We now endeavored to insert a large drainage-tube, but found it impossible on account of the close approximation of the ribs. These we tried to separate by various instruments, but in vain. I then examined the wound with the forefinger, and found that, as I pressed firmly, the ribs began to yield and separate, and then, to my great satisfaction, the finger passed into the chest-cavity, and, on its withdrawal, was followed by a copious discharge of purulent fluid. "Ah!" exclaimed Mr. P., with a sigh of relief, "I would have given you five hundred dollars just now to take away your finger; and now, if I had it, I would give you as much for having put it in." Cod-liver oil, ℥ j, with twenty drops of the muriated tincture of iron, three times daily, were prescribed—a favorite prescription of the writer in such cases. In about two months, Mr. P. was entirely restored to health. The chest-cavity was twice washed out with warm water slightly carbolized.

Case II.—Mr. F., twenty-one years of age, commercial traveler, of the Jewish race, extremely nervous and timid; previous history good; parents and brothers and sisters healthy; has been ill for two months; has slight cough and night-sweats; is greatly emaciated; pulse 120; respiration 32; has all the physical signs of effusion in the right pleuritic cavity. The hypodermic needle withdrew thick, white, odorless pus. The operative procedure was precisely the same as in Case I, except that the ribs were separated more easily, more quickly, and with less pain, as would be expected,

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considering the age of the patient. Rapid and entire recovery ensued. The chest-cavity was several times washed out with a weak solution of boracic acid. I was invited to see this patient by Dr. Frank, of Buffalo.

Case III.—John G., inmate of the Buffalo General Hospital, German, forty-five years of age; habits had been intemperate for many years; has chronic pleurisy with very large serous effusion; had been aspirated by Dr. Herman Mynter twice before admission to the hospital; since his admission has been aspirated twelve times in eight weeks; has been placed upon tonics and diuretics; chest has been painted often with the tincture of iodine, and the recumbent position has been almost constantly maintained. He has, however, steadily lost ground, and the effusion recurs rapidly after aspiration. Abdominal dropsy and œdema of the lower extremities also became apparent. There is no albuminuria and no cardiac disease. Cirrhosis is suspected. It was decided to introduce a drainage-tube. This was done as in the first two cases, but it was not as well borne. For four days he had sinking turns, and for the first two days the discharge was deeply tinged with blood. He began to rally at the expiration of a week, and for three weeks distinctly improved, but again failed, and died five weeks from the date of the operation. The post-mortem examination showed half a pint of bloody serum in the pleural cavity, the costal pleura very red and engorged, the pulmonary pleura covered with thick, false membrane, and the lung pressed upward and backward and so small and condensed that it was about the size of an adult hand. It did not, however, present any other evidence of disease. The pericardium was pretty fully distended with serous liquid. The left lung and the left pleura were healthy. The liver was contracted and cirrhosed. All the other organs were healthy.

The writer has had quite an extensive experience in paracentesis thoracis and has often been annoyed in trying to make a sufficiently large and a permanent opening for a drainage-tube of proper caliber. He trusts that he has found a method which will obviate this difficulty for others and for himself, and respectfully submits it to the Association for consideration and comment.

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DISCUSSION ON DR. FERGUSON'S PAPER AND ON DR. ROCHESTER'S PAPER.

Dr. Austin Flint, of New York County.—I have listened to the reading of both papers with interest, and especially to the explanation offered by Dr. Ferguson of the effect produced by the complete withdrawal of liquid from the pleural cavity. I must confess, however, that the statement made by Dr. Ferguson with regard to the harm done by the aspirator seems to be rather strong. I can not agree with him in that statement, but still there are views set forth in the paper which are sound and appropriate. I have particularly been struck by the comparison made to the complete withdrawal of urine from the over-distended bladder. Some years ago, I saw a case in which the bladder was immensely distended, and, all the water being withdrawn at one sitting, the result proved disastrous.

Dr. E. M. Moore, of Monroe County, asked Dr. Ferguson a question with regard to the use of the aspirator in the general domain of surgery.

Dr. Ferguson replied that the point which he wished to make was that, in the large majority of cases in which relief followed the use of the aspirator, such relief would have followed without the operation; and it had been his observation that the aspirator could be charged with causing death in not a few instances. In one portion of his paper, he referred to the use of this instrument in pelvic troubles, where he had seen it cause general peritonitis by allowing a small quantity of vicious liquid to flow upon the peritoneal surfaces.

Dr. Moore said he had no doubt that every surgical instrument had done some harm, and he would not except the aspirator; but he hardly thought it proper to view the question of the value of this instrument from that stand-point. We could scarcely expect, every time we used the aspirator, to thereby save the life of a patient. We all knew that in cases of hydrothorax, absorption of the fluid would often take place if the case were left without surgical treatment; but sometimes this did not occur, and we were compelled to resort to the aspirator. He had a case in mind

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which illustrated the fact that empyema could be better treated by the aspirator than in any other way, but he did not doubt that an artificial opening could be kept patent by the means described by Dr. Rochester in his paper. He was fully convinced that the drawing off of a certain quantity of the liquid at stated times would, in a large number of cases, enable us to save life. This was a very strong statement to make, and yet, as just said, such was his strong conviction. It had been his misfortune to see a great many cases of empyema, and he could freely say that his experience had been very unfavorable, except in children, who were expected to get well as a rule. Adults he believed usually died. But, during the last two years, he had seen two cases of empyema, occurring in adults of at least fifty years of age, in which he had no doubt that the result would have been fatal except for the patient use of the aspirator. Under this treatment, however, which was employed not by himself, but by another physician, the patients each made a complete recovery. The thoracic walls were considered unyielding, and it was for this reason that but a small quantity of the pus should be withdrawn at a single operation. In this regard, he thought Dr. Ferguson had made a good point, as well, also, as with regard to the avoidance of hæmorrhage. If one would take the trouble to measure the circumference of the chest while withdrawing pus from the pleural cavity in a case of empyema, he would find that a retraction took place to the extent of an inch or an inch and a half. Of course expansion would again occur with the secretion of more pus, and this would be an indication for a repetition of the operation. The gradual formation of cicatricial tissue would finally diminish this pus-cavity and cure the case. He had made use of drainage-tubes, but he regarded treatment with the aspirator as far superior.

With regard to the use of the aspirator in other parts of the body, as in diseases of the abdomen, he could not agree with the remark made by Dr. Ferguson. In the female, for instance, the abdomen seemed to be specially constituted to enlarge and afterward contract; and here the laws governing the use of the aspirator in the thoracic cavity did not apply. He recalled the case of a girl who had an ovarian abscess which contained as much as ten pints of pus; and, on withdrawing the liquid with the aspirator, the abdominal walls retracted by atmospheric pressure, and no

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trouble followed. The case, however, would be different in the thoracic cavity, where the nearly unyielding walls could by no possibility contract and obliterate a space which had been occupied by ten pints of pus.

Dr. Ferguson remarked that he had made that point in his paper.

Dr. Moore further remarked, with regard to the comparison to suddenly emptying the over-distended bladder, that a long time ago he lost a patient by this procedure.

Dr. Rochester desired to make a few remarks upon Dr. Ferguson's paper before his own was discussed. He had performed paracentesis a great many times, and had learned from experience the dangers of withdrawing all the liquid from the pleural cavity at a single operation, as they had been set forth by Dr. Ferguson and by most recent writers upon the subject. He had known hæmorrhage to occur into the pleural cavity for the reasons set forth by Dr. Ferguson; and he had also known serious hæmorrhage to take place from the lung during paracentesis. It had, therefore, been his practice for many years, in using the aspirator, to draw off only ten or twelve ounces of liquid at a time, and to stop the operation as soon as the patient began to show the slightest signs of distress; but he might aspirate as many as eight or nine times subsequently, until liquid was no longer secreted by the serous surfaces. In some cases he had found it unnecessary to repeat the operation after having withdrawn eight or ten ounces of liquid, the rest being disposed of by absorption. He thought that, under the precautions enjoined by Dr. Ferguson, the aspirator could be used with safety. He kept the patient quiet, and usually painted the chest with iodine or strapped it very firmly with adhesive plaster. Both these procedures he regarded as useful and conducive to recovery.

Dr. Ferguson.—Before writing my paper, I requested my assistant to look up the literature of the subject of aspiration of the chest; and I myself read what I had at hand as to its bearing upon the points brought out in the paper. I have been unable to find any mention of the dangers to which I have called attention. I cordially agree with Dr. Moore in the statements which he has made with regard to aspiration of the thorax. At the present time, I have several patients carrying a drainage-tube, some of whom

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have been doing so for several years; and I feel quite sure that had these patients not been so treated they would have died from chronic suppurative disease. Within a short time, I have seen three cases of empyema which had been cured by the single withdrawal of a few ounces of pus by aspiration just below the angle of the scapula. Less importance, in my opinion, is to be attached to the statement made in my paper with regard to the seriousness of the use of the aspirator than has been given to it in the discussion. I have said that the aspirator is an instrument of great value, but I consider that the field for its use should be well defined. As to the use of the aspirator in abdominal and pelvic troubles, I believe that in some cases it would be of great benefit; but if it is to be employed for diagnostic purposes, I should advise caution, for there is danger, even after the employment of a small needle, that fluid may escape into the peritoneal cavity and give rise to peritonitis.

DR. ROCHESTER.—I regard it as a waste of time to use the aspirator in empyema, and it is very liable to become a source of danger. I have tried it repeatedly, and in one case I aspirated the patient twelve times, drawing off in all twenty quarts of pus, without introducing, however, a drainage-tube. The patient died within two years, of what was believed to be pyæmia. In my judgment, some cases of empyema may recover after treatment by aspiration, but the probability is that they will not. With the drainage-tube, suppuration will continue, and there is always some danger of absorption of pus. There is, however, an important point in the use of the drainage-tube which I have failed to mention; namely, that, after allowing the discharge of a certain quantity of liquid, a clamp is placed on the tube, and, after some hours, it is again opened. I have been in the habit of placing absorbent cotton or oakum upon the wound, thus preventing odor and sufficiently excluding air. By this method of treatment, I have obtained a cure in a number of cases of empyema. One of these was the case of a child sent to me by Dr. Flint, in which I aspirated repeatedly; and, as the patient did not do well, I inserted a drainage-tube, after which recovery was complete. I have used the drainage-tube in a number of cases in adults, with no ill consequences. I have one or two cases under observation at the present time, in which the patients are wearing drainage-

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tubes, the cure being imperfect, but, had the tube not been employed, death would have taken place long since.

The point made in my paper was to facilitate opening into the chest. I have myself often experienced difficulty in this respect; but, by introducing the finger, the opening was made quite free, and no trouble was afterward experienced in introducing a drainage-tube. In empyema, I attach very great importance to the drainage-tube, while I think very little of the aspirator. I fully agree with Dr. Ferguson as to his precautions against withdrawing too much of the liquid from the pleural cavity at a single operation; but I think that the same precautions have been recommended by nearly all recent authors, and for the reasons which Dr. Ferguson has given. With regard to the method employed by Dr. Freeman, of Pennsylvania, I have tried it, but have found that the opening soon closes and the discharge of pus is arrested.

Dr. Flint said he had been accustomed, as Dr. Rochester has suggested, to stop aspiration as soon as unpleasant symptoms appeared; but, if he understood Dr. Ferguson aright, the point which he wished to make was that aspiration should be discontinued after withdrawing a small quantity of liquid, not waiting for unpleasant symptoms to show themselves.

Dr. Ferguson remarked that such was the point made in his paper, and we should by all means stop the operation as soon as patients begin to cough or to give evidences of respiratory disturbance.

Dr. W. C. B. Fifield, of Boston.—The precautions in the use of the aspirator mentioned by Dr. Ferguson were pointed out by the inventor of the instrument, Dieulafoy, at least ten years ago. By this instrument, the contents of the pleural cavity are made to flow into a vacuum, being received in a graduated glass bottle, thus enabling one to know exactly how much liquid has been withdrawn at any moment during the progress of the operation. Dieulafoy stated explicitly in his book that the quantity of liquid to be withdrawn from the chest is not to be estimated by any symptom presented by the patient, but that it should be fixed by absolute quantity, this being, I believe, one thousand grammes; and under no circumstances should that quantity be exceeded.

As to the treatment of purulent pleurisy, or empyema, in a

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large box which accompanies Dieulafoy's latest aspirator, are a number of curved canulæ with trocars to correspond, with openings upon the shields, by which adhesive plaster or other material may be made fast for securing the tube within the opening. These curved canulæ can be left in the chest, a cap screwed on, and, whenever the surgeon so desires, he can allow liquid to escape from the pleural cavity. I have never had occasion, however, to employ this method, but I can understand how it may have advantages over the drainage-tube or a simple fistulous opening. In a case which I saw with Dr. Bowditch, of Boston, the opening between the ribs was dilated with the finger, not using a drainage-tube afterward, and complete recovery took place.

The PRESIDENT remarked that Dr. Moore, it would seem, thought that most cases of pleurisy recovered without aspiration or anything more than general treatment; but how is it, he asked, that we see so many cases of pyothorax, if most cases of simple pleurisy recover? He knew of some physicians who had practiced withdrawing the liquid early, without waiting one or two weeks, with favorable results.

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ADDRESS ON OBSTETRICS AND GYNÆCOLOGY.

By T. Gaillard Thomas, M. D., of New York County.

November 19, 1884.

Mr. President and Gentlemen—Fellows of the New York State Medical Association: If I interpret aright your wishes in requesting from me an address on obstetrics and gynæcology on the occasion which brings you together in this city to-day, you desire, at the hands of one who has paid more attention to these subjects than the general reader and practitioner, an estimate, from his stand-point, of the present status of these departments of medicine, their relations to other branches, the advances which the past decade has accomplished for them, and the most signal lines of progress which have been pursued in the accomplishment of such advancement. If my conception of your wishes be correct, my task will not prove a difficult one, nor shall I be forced to weary you with prolix and uninteresting details.

Pardon a passing reference to the infancy of the science of obstetrics, which will merely serve to remind you of facts which you know as well as I. Obstetrics as an art must always have existed, even among savage nations; and, as civilization and refinement have advanced, this art has ever become more and more perfect, keeping pace, as other arts have done, with the general progress in a people's knowledge. And thus it is that obstetrics, advancing from the ages of the past, from the period of the wonderful old man of Cos to that of Smellie and Levret, existed as a very perfect art indeed; but it was in no

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wise a science. He who was to elevate it to this high sphere was found in the person of the great Englishman, William Hunter, whose admirable work upon the gravid uterus did for this department of medicine what the eminent labors of Euclid did for mathematics, existing to-day as a valuable part of the library of every intelligent practitioner of midwifery.

From that time to the present, a steady advance has been made; and in our day we see the reproach which, once upon a time, and that not so very long ago, attached to the "man-midwife," entirely wiped away. But all this has often been written of. Let me now pass over the wide chasm which divides two centuries from each other and speak of those improvements in this hundred-year-old science to which the past decade has given birth.

With how little pomp and parade are the greatest discoveries of science usually heralded! Who could have pictured to himself the wonderful results which were to follow the crude experiments of Count Rumford with steam; the watching of the swaying of a set of church-lamps by Galileo; Newton's study under the apple-tree; or the flying of a Yankee printer's kite upon Boston Common? Yet the world has trembled and swayed under the results of these things, and mankind has felt their influence in every fiber and atom. In my judgment, one of the greatest achievements of modern pathology has been the discovery of the agency of certain lowly-organized monads, micrococci and microzymes, classed under the head of bacteria, in the production of septicæmia, pyæmia, and the long list of diseases which are their outcome. These atomic bodies, floating in the atmosphere, clinging to sponges and towels, and adhering to instruments and fingers, enter the blood through abraded surfaces. The prevention of the evil consequences of such entrance by the plans of Lister has accomplished a great deal for general surgery. Applied to obstetrics and gynæcological surgery, the same methods are found to be fully as successful.

Progressive obstetricians are now pretty well agreed that the diseases which follow child-birth are due, for the most part, to the introduction of some contagium or poisonous element

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from without through the open mouths of exposed blood-vessels laid bare by the parturient process, somewhere between the fundus uteri and the vulva. This theory being once accepted, it follows as a natural deduction that every means in the power of the obstetrician should be adopted for the prevention of the introduction of the morbific agents.

Even though the obstetricians of to-day are not prepared to make aseptic midwifery a rule wherever that art is practiced, it is highly probable that, in the very near future, this position will be accepted. Even now, this method, in a modified form, is exerting a beneficial influence and is steadily working its way to adoption, in spite of the fact that it entails a great deal of trouble on the practitioner. That it can do no harm is quite evident. Does any man, can any conscientious obstetrician, maintain that strict cleanliness and the most scrupulous avoidance, so far as it lies in his power, of all things which can possibly admit of the entrance of the agents which in all probability produce puerperal septicæmia will do any harm in the lying-in chamber? Supposing that only one life be saved out of a hundred deliveries; will any one assert that the saving of this one life would not repay him for the trouble which his preventive precautions have cost? If the whole theory of the bacterial origin of puerperal fever be false, then, in a quarter of a century from now, all precautionary measures will disappear and the old *régime* will triumph. But if, perchance, this theory be valid and true, then no human power will prevent the realization of the prophecy that aseptic midwifery will be a rule as strict, as inviolable, and as obligatory, as the aseptic surgery of amputations and of laparotomy is to-day. Look at the surgery of London, of Paris, of Vienna, and of New York of twenty years ago, with its unclean hands, its fatally dirty instruments, its death-laden sponges, and its foul air, with its terrible mortality, and then look at the surgery of those same cities to-day; and he will be a bold man who dares gainsay the statement that, in another quarter of a century, no one will venture to rise in a scientific body and declare that any efforts at perfect cleanliness in the lying-in room are superfluous or absurd.

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To free the parturient act from the dangers of septic poisoning, to prevent that scourge, the so-called puerperal fever, and suppurative arthritis, pyæmia, embolism, and septic inflammation of the lungs, liver, and other organs, would be to save millions of lives in every generation, and to raise the science of obstetrics to an enviable height.

The germ-theory has done more for obstetric medicine than what I have here alluded to. It has revolutionized the treatment of that variety of septicæmia which has been called puerperal fever. No longer do we depend in the treatment of this affection upon quinine, opium, and the application of emollients over the abdomen. By intra-uterine injections, the cavity of the uterus is thoroughly and repeatedly washed out with solutions of the bichloride of mercury 1 to 2,000, or with a 2½-per-cent. solution of carbolic acid. Surely no one who has experience in the new and the old methods will cavil at my statement that a great improvement has been effected by the former.

Were I called upon to sum up the treatment of a declared and undoubted case of puerperal septicæmia, marked by the usual symptoms of a pulse of 120, a temperature of 105° or 106°, which would meet the requirements of our time, I should give it categorically thus:

1. Quiet all pain by morphine hypodermically.
2. Wash out the uterine cavity with antiseptics.
3. Lower the temperature at once below a hundred, not by the barbarous method of the cold bath, but by the far better one of the coil of running water.
4. Feed the patient upon milk and nothing else, unless some good reason exist for changing this diet.
5. Exclude from her room all except the nurse and the physician, keeping her as quiet as possible.

Although the subject of extra-uterine pregnancy has attracted attention from the earliest days of medicine, it is only of late years that it has been carefully studied, its diagnosis put upon a firm basis, and its treatment systematized. Laparotomy, with its wonderfully beneficent results, has been brought to bear upon these cases, before and even after rupture of the vica-

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rious fœtal nest. By this procedure, Jessup, of England, has succeeded in delivering at full term a child developed in the peritoneal cavity, and in saving at the same time the mother; and by it, Tait, of the same country, has saved four women after the fœtal sac had ruptured. But it is to the fœticide powers of the electric current, first used by Allen, of Philadelphia, and then by Landis and Reeve, that the safety of such cases can best be trusted. This method is harmless to the mother, even if an incorrect diagnosis be made, and it is effectual in producing fœtal death if the diagnosis be correct. The number of lives which have already been thus saved is quite large and is daily increasing; and these are lives which, in former times, would have been sacrificed to inattention, want of skill in diagnosis, or to a lack of reliable remedial measures, even if the diagnosis were rendered pretty certain.

It must not be supposed that, in the olden time, no cases of extra-uterine pregnancy were saved. In making my statement, I allude only to the systematic management of cases in their early periods, as regards both diagnosis and treatment. In this country, even as early as 1759, Dr. John Bard successfully performed gastrotomy for the removal of a full-grown child from the peritoneal cavity. Dr. Baynham did so twice, once in 1791 and again in 1799; and Dr. John King, of Edisto Island, South Carolina, in 1816, cut through the vagina at full term, applied the forceps through the opening, and safely delivered a slave-woman of a child which was developed in an abdominal pregnancy. But at that time and long afterward—until our own times, I may say—the early diagnosis and early treatment of tubal pregnancy were found to be impossible. To-day, given a woman whose symptoms of pregnancy are irregular, who suffers pain in one iliac fossa, who has sudden gushes of blood, and who is subject to occasional attacks of faintness, and every intelligent practitioner would at once examine with reference to the existence of ectopic gestation, and, discovering it, would promptly proceed to destroy the fœtus in its false uterus.

Some one has very pithily said of late that the medicine of a hundred years hence will consist chiefly of prophylaxis and

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surgery. It appears to me that this statement, which has more than one grain of truth in it, applies with great force to our subject of to-day. The day is, I feel sure, not far distant, when preventive measures will be applied with most triumphant results to placenta prævia, puerperal nephritis, placental apnœa, contracted pelvis, the obstinate and often fatal vomiting of pregnancy, and to that extreme hydræmia which so often results in thrombosis.

Obstetricians are beginning to question themselves as to whether it be wise, in the interests of both child and mother, to wait and watch during the last two months of pregnancy until a sudden and furious hæmorrhage makes an issue unavoidable in placenta prævia, or until a convulsion announces the limit of tolerance in puerperal uræmia, or the cessation of fœtal movement tells the tale that the crippled intra-uterine lung has ceased to have power enough to prolong fœtal life. The methods of inducing premature labor are now so simple, so certain, and so void of danger, that they now, more than at any previous time, present themselves as a sovereign resource in such cases. And this is more especially true since Tarnier, by his glass-house with heated air regulated so as to meet the feeble heat-making process of the premature infant, renders the perpetuation of the lives of these beings so much more certain than when they were exposed to the chilling draughts of the chamber, and perhaps were at once dipped in water and exhausted by washing and dressing.

How often has every man in this room watched with intense interest and anxiety the following picture! A mother of several children, a beloved wife, and the center of a large circle dependent upon her for love, for care, and for counsel, about the end of the seventh month, develops the symptoms of placenta prævia or severe puerperal nephritis. The physician can not conceal from those who surround her the fact that a violent hæmorrhage or a sudden convulsive seizure may at any moment destroy life. Should one of these occurrences take place, the patient's friends know full well that it may be hours before medical aid can be obtained in their dire necessity. Day after

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day, the painful process of watching, hoping, and dosing goes on; and gradually the symptoms grow worse, until the final issue comes and great joy is felt if, the child being sacrificed, the mother survive. It is to save all this, at the expense only of exposing the child to the danger of premature birth—a child, too, whose life would be in great danger even if the pregnancy were allowed to proceed—that premature labor offers itself as a valuable resource.

The obstetric forceps is probably the most life-saving instrument which surgery has ever invented; and from the time of the Chamberlens, about 1647, thousands in every generation have endeavored to improve it, thousands have handed down their names in connection with it by suggesting trivial modifications, and thousands have in their efforts rendered themselves butts for the laughter of their successors by reason of the vanity which guided them. Few, very few indeed, real improvements have been made in these instruments, and these improvements have occurred at long intervals. The Chamberlens used short, straight forceps; Levret and Smellie added length and gave a pelvic curve to these, and nearly, if not quite, doubled their value; and Tarnier, of France, has, in our day, added a pair of tractors which enable the operator to pull more accurately in coincidence with the superior strait, while the handles are still in the inferior. This is the only real improvement in these instruments since the days of Levret and Smellie; and, like theirs, it marks an era in the history of the instrument and a mile-stone in its advancing usefulness. There are cases, and many cases, in which it is not called for; there are some, and not a few, in which it gives great facility in delivery.

Of late, two substitutes have been proposed for the Cæsarean section, for extirpation of the gravid uterus and its annexa after delivery of the child, or Porro's operation, and for delivery of the child above the superior strait of the pelvis by cutting through the abdominal walls and vagina, or laparo-elytrotomy.

R. P. Harris, of Philadelphia, the only great medical statistician that America has yet produced, reported, in October, 1883, that the combined Porro and Porro-Müller operations

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saved, out of 116 cases, $48\frac{8}{9}$ per cent. of mothers, and 90 out of 118 children. Garrigues, in an able and exhaustive essay, reported in the same year that, out of eight operations, laparo-elytrotomy saved half of the mothers and all of the children, except two who died before the operation was undertaken.

In general terms, I think that, to state the comparative success of the two operations, it must be said that the results of laparo-elytrotomy have thus far been superior to those of the Porro-Müller operation, but that, for some inexplicable reason, the latter has found favor with the profession, both in this country and in Europe, which the former has failed to obtain.

From my own experience with laparo-elytrotomy, I feel certain that, if a fair trial be given to it, it will surely yield a success greater than either the Cæsarean section or the Porro-Müller operation. It is so easy of performance, inflicts so little injury upon important viscera, and has already proved so successful, that I can not doubt its merits.

We must not conclude that, because the general professional mind is not favorable to an operation which has been little tried, such an operation has "been weighed in the balance and found wanting." The following examples will prove the contrary: In 1834, Gossett, of London, discovered the present operation for vesico-vagina fistula—position, metal suture, speculum, and all—operated twice, and published his operations. Yet it was left for Marion Sims, in 1852, to rediscover the whole matter. The greatest advance that has been made in medicine during the present century, is the application of clinical thermometry; and its adoption is, as you all know, quite recent. Yet, about one hundred years ago, Currie, of England, fully developed this invaluable contribution to scientific medicine, merely to see it pass out of notice and yield no results; and these are by no means the only instances of want of appreciation which can be quoted. I do not, therefore, despair of laparo-elytrotomy; but, from personal knowledge of its advantages, I am very hopeful of its future.

A little more than a month ago Dr. Pilcher, of Brooklyn, having under his charge a case of labor in a deformed woman,

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aged twenty-one years, in good health, but with a rachitic pelvis giving in the antero-posterior diameter of the superior strait a measurement of two inches, sent for Dr. Skene to aid him. After the patient had been in labor eight hours, Dr. Skene, with his well-known skill, performed laparo-elytrotomy, and delivered her of a living child. To-day both mother and child are perfectly well, the after-history of the former being entirely uneventful, the wound healing by first intention, and the patient sitting up on the twenty-first day. It gives me great pleasure to avail myself of Dr. Pilcher's kind permission to report this as yet unpublished case to you to-day. And now in all candor let me ask you if a procedure which has effected such a result repeatedly, both as regards mother and child, should not be at least fairly tried before it is cast aside among the failures of obstetric surgery?

From the earliest records of the medicine of Egypt, of Greece, and of Rome, the practice of gynæcology can be readily traced; and although, like all other learning, it became paralyzed by the baneful influence of the dark ages, with the revival of letters it was at once pursued. Before the middle of the present century, however, it did not in any respect deserve the name of a science. About that time, through two influences, the speculum, which since the days of Récamier had slowly worked its way into use, and anæsthesia, which enabled the surgeon to perform operations, both tedious and painful, upon the genital organs, the science of gynæcology passed in a great degree out of the domain of medicine, with its uncertain theories and doubtful resources, into that of surgery. From that day a new era has existed for this department of medicine, which has given it a place among others, not only of respectability, but of dignity.

I know not what view others may take as to the influence which has had so great a result in gynæcology as all have seen exerted during the past quarter of a century; but, in my judgment, it is the bringing into the service of this department the powerful aid of surgery. Let me beg you to observe that I am not urging the claims of surgery at the expense of those of constitutional treatment in gynæcology. Far from doing this,

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I am an advocate of the great advantage of constitutional treatment in diseases of the pelvic viscera in the female. There is no more clashing between medicine and surgery here than there is elsewhere; they should work together for good, the one sustaining and supplementing the other. Nevertheless, I fearlessly assume the position that an enlightened and conservative surgery is the pivot around which is to revolve the gynæcology of the future; and that, were surgery withdrawn from this department to-day, it would be deprived of the greatest part of its usefulness and efficiency, and would gradually lapse into the condition which it occupied a century ago.

Every virtue has a vice which so closely corresponds to it and so nearly resembles it upon superficial examination, that the real and the false are often confounded. Vanity often simulates modesty; cold policy passes current for charity; and even arrogant pride is not infrequently mistaken for humility. In medicine, cant—for there is cant in medicine as there is in religion, in politics, and in all other spheres in which the mind of man works—is often mistaken for that most laudable and meritorious of medical qualities, conservatism.

When vaccination was introduced, a great deal of medical cant was talked; and so it was when the pains of labor were first assuaged by chloroform; when ovarian tumors were submitted to laparotomy and thousands of valuable lives were yearly saved; and when the obstetric forceps was put upon its proper basis as an instrument to be resorted to in the interest of mother and child, before the symptoms of powerless labor had absolutely developed themselves. When, through the instrumentality of Simpson, Sims, and Simon, surgery was introduced into gynæcology, a jeremiad was inaugurated, the echoes of which are only now dying away like the rumblings of a recent storm. Those who practiced gynæcological surgery were accused of recklessly mutilating the most beautiful of God's creation. Their conservatism was impeached, their judgment was impugned, and their honesty was attacked. And what has been the outcome of the controversy, what is the present status of the moot question? By the aid of gynæcological surgery, thousands

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of women, who formerly filled beds of suffering throughout their menstrual lives, are now in a month or two restored to perfect health; thousands who were doomed to early death are saved; thousands who for weary years visited the offices of one, and then another, and still another physician, resisting the powers of general tonics, and nitrate of silver, and potassa fusa, and the actual cautery, are now quickly enabled to perform all the duties of life without exhausting their resources by yearly stipends to the medical man. A woman suffers from profuse leucorrhœa and back-ache, with difficult locomotion. Formerly she would have gone, times without number, to her doctor's office to have caustics applied to the ulcer of the neck of the womb, until he got tired of her, or she of him. Now a lacerated cervix is cured by Emmet's great operation, and a limit is put to her patience and her husband's capacity to bear expense. A young woman, whose terrible sufferings at menstrual periods have half crazed her, nearly made her an opium-eater or gin-drinker, and almost transformed her into one of those social vampires who suck the sympathies and vital force of a whole family in place of blood, instead of living on, a libel upon her sex, is cured by Battey's operation and restored to her place in life. Another, who has had the accident of lacerated perinæum inflicted upon her by parturition, instead of passing her life in "ringing the changes" upon all the varieties of pessaries known to art, is cured by perineorrhaphy or colporrhaphy. And still another, who, perchance, "had an issue of blood for twelve years, and had suffered many things of many physicians, and had spent all that she had, and was nothing bettered, but rather grown worse," after having exhausted all the hæmostatics and oxytocics and astringents, has a loop of wire, called a curette, carried into the uterine cavity, and fifteen or twenty fungoid growths, about as large as grains of barley, removed, and straightway the fountain of her blood is dried up.

Surely the time is at hand when the gynæcological surgeon may boldly say to his detractors, "Enough of this, the logic of events condemns your futile efforts"; and to those in his own department, "He who is not prepared to give his patients the

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advantages of surgery, either at his own hands or those of another, is not prepared to act honestly and fairly by those who intrust their interests to his keeping."

The pathological conditions which most frequently result in the chain of symptoms which marks the pelvic diseases of women may, I think, be fairly formulated in the following manner:

1. Injuries received during parturition.
2. Natural or acquired imperfections of the uterus and ovaries.
3. Displacements of the uterus.
4. Benign neoplasms in the uterus, ovaries, or annexa.
5. Tubal and ovarian diseases.
6. Uterine catarrh.
7. Hyperplastic development of the endometrium.
8. Neuroses, such as vaginismus.
9. Inflammatory disease of the pelvic areolar tissue and peritonæum.
10. Malignant disease of the uterus or ovaries.

It may safely be said that, in almost all of these, a resort to surgical interference is often essential to cure, while in most of them it is absolutely so.

No surgical procedure has more profoundly excited the interests of gynæcologists during the last decade, and I may add that none has done more good, than the operation of trachelorrhaphy. That its future sphere of usefulness is a large and brilliant one, no one who has studied its results at the bedside without prejudice can for a moment doubt. May its originator long live to enjoy the evidence of the good which his labors have accomplished and will continue for all time to effect!

Extirpation of the ovaries for three purposes; *viz.*, for effecting a premature menopause, for checking the growth of large fibroids, and for removal of ovaries and Fallopian tubes for hydro- and pyo-salpinx and resulting pelvic inflammation, has now become a well-recognized and accepted resource in gynæcology. The originators of these operations, for they really differ from each other in many essential respects, are Battey,

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Hegar, and Tait. So great are the benefits resulting from these procedures in the various conditions for which they are practiced, that nothing can now stop their advance.

Nevertheless, as I look to-day into the future of any operation for removal of the ovaries, I see in it the instrument of great abuse. I see it performed in many cases of mental disorder aggravated by the menstrual molimen, in which it will fail of result; in many of uterine disease which could without its aid have been cured by care, patience, and skill; and in a great many cases in which diagnosis is obscure, and in which a resort to it is, to say the least, empirical. But I also see opening before it, in the future, a very wide field of usefulness; I see patients, doomed not only to misery themselves, but dooming whole families to life-long discomfort and anxiety, entirely relieved by it; and I see many women, in whom without it the curses of opium-eating and dipsomania might ingraft themselves upon the monthly recurring dysmenorrhœa, lifted by it from moral death to lives of happiness. Are we to reject agents capable of great good because by misdirection they are likewise capable of great evil? No; let us hail the good and apply it to man's wants, and let us strive as best we may to limit and control the evil which we can not wholly avoid! No one can doubt that numberless evils have followed upon the discovery of gunpowder; yet no one can be blind to the fact that this discovery has done a vast deal for the advancement of civilization and the good of mankind.

Even as early as the year 1560, Andreas à Cruce is said to have removed the uterus *per vaginam* for carcinoma; and it is probable that even before his time, Soranus had performed this desperate operation, which taxes in our day the skill, boldness, and resources of the surgeon. During the eighteenth century, the operation was several times performed, and in 1813, Langenbeck had a successful case. In 1829, Récamier made improvements in it, and in 1878, Czerny revived the operation and placed it upon a firm basis. In 1883, Länger published the following statistics of the procedure:

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Vaginal extirpation of cancerous uterus.....	133
Recoveries.....	95
Deaths.....	38
The percentage of deaths being	28

In 1884, P. F. Mundé published statistics of 256 cases, with a mortality of 24 $\frac{8}{10}$ per cent.

Freund, in 1878, revived the operation of the removal of the uterus by abdominal section, a procedure put in practice by Gutberlat as early as 1825. Freund's operation has now been performed 106 times, with a result of 72 deaths and 34 recoveries.

Not to detain you longer upon the present status of these two heroic procedures for desperate conditions, I can sum up the matter by the statement that Freund's operation, by reason of the great difficulties and dangers which attend it, is now relegated to disuse; while vaginal extirpation of the uterus, although acknowledged to be a procedure of great danger, of undoubted difficulties, and of questionable results, has conquered for itself the position of a recognized, legitimate, and even a valuable procedure.

An operation which ends fatally in one quarter of all the cases submitted to it is a procedure of doubtful character, as a matter of course; but let him who feels disposed to question the justice of the estimate here given remember the terrible future which inevitably attends the progress of uterine cancer, with its physical suffering, mental distress, and disgusting concomitant circumstances, and he must admit that any operation which has the power, even at the imminent risk of death, to lessen or remove these should be hailed as a precious resource.

Uterine extirpation for cancer, however, is one of the most difficult and dangerous of the resources of surgery. As a compromise-measure, removal of the entire neck by a conical section extending even up to the fundus uteri, and subsequent closure of the cervical lips by suture, often supersedes it with great advantage.

Deformities of the uterus which alter its shape, impair its

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nutrition, and interfere with the perviousness of its canal, have long been recognized as grave pathological factors; and even in our day the most sanguine practitioner must admit that their treatment is difficult, uncertain, attended by the dangers of cellulitis and peritonitis, and unsatisfactory to a lamentable degree.

At the present day there are three methods by which uterine deformities (anteflexion, retroflexion, and lateroflexion) are treated: First, the misshapen organ is repeatedly forced into better form by the introduction of the uterine sound, and subsequently it is in a lame, uncertain fashion sustained by a vaginal pessary; second, the tortuous cervical canal is cut at the internal and external os, and a uterine stem is introduced and kept in place by a sustaining vaginal cup; and, third, the whole uterine canal is at one sitting distended by a powerful "divulsor," or expanding forceps, to as great an extent as the tissue of the organ will bear. The first two of these methods are well known to you; it is the latter that I desire now to bring to your notice. The heroic nature of this procedure, its apparent brutality, and the dangers which one would naturally fear as a consequence of the forcible stretching of uterine tissue, which is really equivalent to absolute tearing of it, have retarded its advance to the position of an accepted operation. Its introducers and chief indorsers have been Priestley, Borck, Ball, and Ellinger, all of whom have claimed for it, not only excellent results in cases of uterine deformity, but a very marked immunity from the accidents which one would fear from it. In this city, Dr. W. Gill Wylie has reported very favorably of it; and Professor Goodell, of Philadelphia, has recently published a paper upon it which, with the strong indorsement of his name, will go far toward rendering it popular and inciting others to give it a fairer trial than it has yet received. Personally I have no experience of it worth reporting; but I certainly feel it a duty to test the question of its use fully from the evidence which we now have before us.

In connection with my subject, I may mention four drugs which have of late been introduced into practice, all of which

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appear to me to possess sufficient value to warrant their special mention here. These are the permanganate of potash, and the fluid extracts of the Stigmata and Ustilago maidis, of the Viscum album, of the Viburnum opulus and Viburnum prunifolium.

Permanganate of potash, introduced by Sydney Ringer, of London, as an excitant of the menstrual flow, is, I think, the best emmenagogue that has yet been discovered. The Stigmata and Ustilago maidis, or ergot of corn, are, like the fluid extract of Viscum album, or mistletoe, excellent oxytocic agents; and they replace the ordinary Secale cornutum very well, not only in cases of labor, but also in causing uterine contraction for the relief of metrorrhagia, uterine fibroids, subinvolution, etc.

The medicinal virtues of the Viburnum opulus and Viburnum prunifolium appear to consist in an influence of a sedative character upon the utero-ovarian nerves. These drugs have been greatly lauded as preventives of threatened abortion and as remedies for the pains which attend disordered menstruation. Although in my experience they have fallen far short of the excellence which has been claimed for them, I feel sure that they possess a considerable degree of virtue.

Although the prolific theme which you have allotted to me, Fellows of the Association, would readily afford material for a much longer address, the fear of taxing your patience admonishes me of the propriety of bringing my remarks to a close. In doing so, let me beg of you to accept my thanks for the kind attention which you have accorded me, an attention which has given zest to my efforts and has rendered my task a pleasure instead of a labor.

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ON VENESECTION IN THE CONVULSIONS OF PREGNANT AND PARTURIENT WOMEN.

By Darwin Colvin, M. D., of Wayne County.

Read November 19, 1884.

In the practice of medicine, fashions change as they do in wearing apparel. Medicinal agents in use a few years ago, in the majority of instances, not because better have been discovered, are now rarely prescribed. So is it with the lancet; for phlebotomy, as the revered Gross said, is one of the "lost arts." Seldom will one be found in the pocket of a physician of not more than ten or fifteen years experience; and if, perchance, one should be found, it is there as a matter of form, for in all probability it has never been used. So will it be, perhaps, with the aconite, veratrum, chloral, and jaborandi of to-day. They, in their turn, may soon be known no more.

My remarks on the subject of this paper will be based upon the experience of a revered father, who, for more than fifty years, was largely engaged in the practice of midwifery. Notes of his cases are now in my possession; and I feel that I have a right to make use of them, as, for the last thirty years of his practice, five of which were during a copartnership, I was associated with him in the treatment of the patients. I shall also draw upon my own experience, now covering a period of forty years. In presenting my experience and conclusions relative to the use of the lancet in puerperal convulsions, I shall not attempt to discuss the causes of this formidable malady, but shall give "a plain, unvarnished tale" by reporting a few cases occurring

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either before, during, or after parturition, which cases are typical of many others found in our note-book. The greater number of my father's cases, as well as a few of my own, occurred before chloroform, chloral, the bromides, morphia hypodermically, or albuminous urine were thought of. Throughout my father's midwifery-book, especially the records of the first thirty years of his practice, I find frequent mention of cases like the following:

I saw Mrs. A., who was seven months advanced in pregnancy. I found her œdematous, with much headache, and complaining of an inability to see distinctly.

She was bled to the extent of sixteen ounces, and I ordered a saline cathartic, with directions that the diet should be less nutritious, and that the bowels be kept in a soluble condition.

As confinement approaches, unless the symptoms, except œdema of the ankles, should subside, I am to be informed, so that I may take more blood. Mrs. A. was safely delivered at full term.

Quite frequently the second venesection was practiced. There are between three and four hundred such cases recorded during the first thirty years of my father's practice, none being followed by eclampsia at the time of parturition.

During this period of thirty years, there are recorded many cases like the following:

I was called to attend Mrs. B., a primipara. She was quite œdematous and had severe headache. The pains seemed to be inefficient. After waiting a reasonable time and not making much progress, I opened a vein and allowed — ounces of blood to flow, which relieved her. The pains soon began to improve, and in — hours labor was completed.

Then, again, many cases of the following character are recorded:

While attending Mrs. C. in her first labor, matters not progressing to suit me, and as I was about to take some blood, she had a convulsion. Not waiting for the convulsive movements to cease, I bled her to the extent of — ounces. Soon the muscles be-

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came relaxed, and after a short time she became conscious. Labor progressed satisfactorily, and she was soon delivered.

I could spend a great deal of time in giving reports of similar cases found in my father's book, but shall hasten on. It must be remembered that, during the period referred to, chloroform, chloral, morphia hypodermically, and albuminuria, were not thought of; and yet, as was subsequently proven, the results of his cases of puerperal eclampsia were more satisfactory then than after these agents were introduced, for, as a consequence, the lancet was not used at the proper time.

About the close of the first thirty years of my father's professional work, I obtained my degree, and immediately a copartnership was formed. It was at about this time that much was written on anæsthesia, referring especially to ether and chloroform. Chloroform was used in midwifery practice, as well as in convulsions, whether infantile or in the lying-in woman, and, when applied to the latter, it was asserted that it would supersede the use of the lancet. Its use in the place of the lancet was frequently the subject of our conversation by night as well as by day. I urged the propriety of its use in the first case of puerperal eclampsia which should come under our care. However, I had not long to wait before an opportunity presented itself, when I could urge its use instead of the lancet, in a case where labor was ushered in by a convulsion.

About 5 o'clock one cold, November morning, I found my father at the door, desiring me to accompany him to a case of labor which, the messenger informed him, "had produced a fit." Notwithstanding that some time would elapse before we could reach the patient, she being in the country, I determined, if possible, to test the effects of chloroform.

Upon arriving at the bedside, we found a primipara, aged twenty-eight, at the completion of term. Her general health had been good. Decided uterine contraction began three hours before our arrival, and, when the friends were about to dispatch a messenger for my father, a severe convulsion occurred, with bitten tongue, bloody saliva being upon her lips and clothing. Con-

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sciousness had returned. She was plethoric, without much œdema, and complained of cephalalgia. The pulse was 90, full and hard. After much opposition, I obtained consent to use the chloroform, should another convulsion occur, not, however, without my father saying, *sotto voce*, "You will regret it, as she will have another convulsion. If I bleed her, she will not."

While an examination *per vaginam* was being made, another convulsive seizure occurred, and I began to administer chloroform. A good impression was produced, and, while the patient was under the influence of the anæsthetic, another examination was made, to determine the condition of the os. But little progress in dilatation had been made. I withdrew the chloroform, being anxious to know whether consciousness would return before the occurrence of another convulsion. After waiting for a longer time than that which followed the first seizure, the brain seeming to be overpowered, there were noticed some slight muscular twitchings of the muscles of the face, when I again resorted to the chloroform. These movements seemed to increase for a short time, when the patient became quiet. The breathing began to be more labored, and the objective symptoms became more formidable, when my father, without further consultation, said: "Your chloroform will not do. This woman will never become conscious unless the brain is relieved by loss of blood. I shall not sit here and see her die for want of this relief. I shall bleed her, and then, if you choose, you can use the chloroform." I confess that my courage in continuing the chloroform had nearly oozed out. A vein was opened, with the remark, "Let the blood run until her complexion changes, even though she is in a recumbent posture." I did as directed, and, when about twenty-four ounces of blood had been taken, the breathing became more quiet and the cyanosed appearance disappeared. The pulse became fuller and more easily compressed after thirty ounces had been taken. The patient then began to moan, the eyelids opened, and she was evidently sensitive to uterine contraction. A slight twitching of the facial muscles was again observed, the chloroform was again applied, and no more convulsions occurred. Pains began to increase. Chloroform was occasionally, though moderately, used. Consciousness returned, and at 11 A. M., the first stage of labor was completed. The patient became conscious and was quite free from nervous irritation. At 1 P. M., labor was

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completed. Accidentally it was learned that the urinary secretion had been scanty for some days prior to parturition; but at that time this had no more significance than constipation.

On the 5th of January following, at 9 A. M., my father and I were asked to see Mrs. P., who was said to be "in a fit." We soon reached the house and found the patient between seven and eight months advanced in pregnancy with her first child. She was twenty-four years of age, of medium muscular development, and her health was usually good. Consciousness had not fully returned. The pulse was 88, and the breathing hurried though not labored. No imprudence on the part of the patient could be ascertained. We learned that, upon rising that morning, she made the remark that she "could not see." This soon passed off, however, to again return just before the convulsion.

No perceptible uterine contractions had occurred, as an examination disclosed; but scarcely had the examination been completed, when there was another convulsion. I immediately began the use of chloroform, with no satisfactory effect, as the spasmodic movements were very severe and protracted. Consciousness was so long in returning, that venesection was imperatively urged by my father. I suggested a saline cathartic as soon as deglutition would permit, and to continue the chloroform should convulsive movements recur. My entreaties were unheeded, and venesection was resorted to.

The loss of twenty-seven ounces of blood, followed by a saline cathartic, brought a return of happiness to the sick-room, as I used the chloroform but once after the venesection. With a careful diet and a soluble condition of the bowels enjoined, the patient was left, after we had urged upon the husband the importance of reporting her condition to us from time to time.

On the 5th of February, my father was asked to see this patient on account of headache. His note states "that, confinement being near, and the pulse hard, I bled her to the extent of a pint, with immediate relief to her head. She was confined, with no intercurrent difficulties, on the 16th of February, at 2 A. M., after a labor of seven hours."

I believe the lives of these two patients were saved by the taking of blood; and it is idle talk, not argument, for those

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who oppose "venesection in the convulsions of pregnant and parturient women," to say that it was merely the custom or fashion of that day for a pregnant woman to ride miles in a springless wagon or go on foot to see her physician on account of severe headaches or perverted vision, which symptoms were almost invariably relieved by the loss of more or less blood.

I need not give details of other cases of a like character, which occurred during our copartnership, although "their names are legion," but shall describe a few, the treatment and responsibility of which devolved upon me alone, as for some years death has deprived me of the society and advice of one of the most judicious and conscientious physicians I have ever known.

Mrs. McC. had lived the life of a celibate until she was thirty-nine years of age, when she married. She was a large, muscular woman, weighing one hundred and seventy pounds. At forty-one she became pregnant.

When eight months advanced, and after suffering from excruciating headaches at times for weeks, she was found, as I was informed, upon the floor, at 10 A. M., in an unconscious condition, "with purple face and frothing at the mouth." I was immediately sent for, and I saw her in thirty minutes. I then found no spasmodic movements. She was not fully restored to consciousness, but she was able to tell me that she had been "suffering throughout the night from pain in the back of the head." The pulse was irregular both in frequency and volume, although quite incompressible.

While trying to elicit more information, I noticed an increased hesitancy in her answers, which was soon followed by spasmodic twitchings of the muscles of the face, with slight strabismus. She was then sitting in a chair. Knowing that a convulsion was near, and as the bed was some distance away, I suggested that she be immediately laid upon the floor, with the head elevated. By that time she was generally convulsed. Chloroform was at once used, for at that period (1860) I was in the habit of using it frequently and always carried it when going into the country. With cold to the head, and chloroform, the spasmodic symptoms began to abate, and were followed by the usual stupor, loud and laborious respira-

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tion, with frothy mucus issuing from the mouth. After waiting half an hour, and discovering no change in her intelligence, with the same irregularity of the pulse, I opened a vein, intending, if possible, as I had done in another case of a like character, to lessen the volume of blood and prevent stasis sufficiently to enable the heart's action to become regular. Having made a larger opening than usual, twenty-six ounces were lost before a satisfactory condition of the pulse was obtained, when the complexion and breathing began to improve. While the patient was in this condition, I made a vaginal examination and found the os uteri unchanged. Consciousness returned sufficiently to enable me to ascertain that she had had no uterine pains. I then administered a dose of castor-oil and turpentine, to be repeated, if necessary, in two hours. She was placed in bed, and I left her at 2 P. M. with no indications of convulsions, promising to return in the evening. I saw her at 8 P. M., in a comfortable condition, she having had a quiet sleep of one hour. I saw her again the following morning, and notwithstanding that, at some time during the night, the bandage had become loosened and she had met with another loss of blood, she appeared quite well and cheerful.

After the necessary advice, I temporarily discharged her. Three weeks after, labor-pains came on. I saw her soon after, and, without giving details, which would extend the history to too great a length, I can simply say that the patient's life, as I believe, was saved only by another loss of a less amount of blood for the relief of a severe headache, and by chloroform and craniotomy. Her recovery was uninterrupted.

I desire to report, in addition, the following case:

Mrs. B., a primipara, aged twenty-four, of slight figure, was taken in labor at 3 A. M. I saw her about daylight and found labor progressing well. The child was delivered at nine o'clock the same morning. No unusual complaint had been made, and, from what I learned from her, there had been no functional derangements of importance, and she was cheerful and happy. After remaining with her for more than an hour, I left for home.

At 12 M., after having asked her mother, "Have I got to have my baby yet?" notwithstanding that it had been given to her after being dressed, and receiving a reply, she had a severe con-

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vulsion, which was epileptoid in character, as far as I could judge from the description given to me upon my return at 2 P. M. I learned that consciousness had returned to some extent as the paroxysm subsided.

As I sat down by the bed, she was again convulsed, this time with bitten tongue. I then prepared some chloral and bromide of potassium for administration when she became able to swallow, and administered chloroform. The patient appearing to be fraggile, with a pulse exceedingly rapid and not very incompressible, the question of venesection was not seriously entertained. Although consciousness had not returned, yet I was able, with some difficulty, to give twenty grains each of chloral and bromide of potassium. Notwithstanding the administration of the above agents and the use of chloroform and morphia, the convulsive seizures recurred once in seventy-five minutes, almost to a minute, throughout the afternoon. The pulse was distinctly to be counted at the rate of one hundred and seventy beats per minute.

Toward evening, as death seemed inevitable, I determined upon venesection in case liberal doses of Squibb's fluid extract of veratrum viride, in connection with the other treatment, should fail to lessen the heart's action and prolong the interval between the convulsions.

Until 2 A. M. the following morning, I jeopardized this patient's life, as I afterward thought and now believe, fearing, from her delicate appearance, her inability to bear up under the loss of blood. She weighed only one hundred and five pounds.

After despairing of saving her by other means, and fearing that my delay had been disastrous, I opened a vein, making a large orifice, immediately after a convulsion. Watching closely the pulse of the opposite wrist, I noticed, after the loss of about twelve ounces of blood, that the beats became slower and fuller, being still sufficiently firm. I allowed the flow to continue, as the heart's action seemed to encourage it, until twenty-five ounces had been lost, when the pulse numbered one hundred and twenty-five distinct, full, and soft beats. Everything then seemed suddenly metamorphosed. Instead of the purplish hue of the face, with stertorous breathing, the skin became somewhat pale and the breathing quiet, and pulse remaining as last stated. I then gave half a grain of sulph. morphia, applying it to the tongue, and determined

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to wait for the rest of the seventy-five minutes to elapse. I continued to wait until 6 A. M., when a slight and last convulsive seizure occurred, making twelve in all, the first eleven of which, although I did not witness the first, were the most terrifying of any I had ever before looked upon. The mental condition continued unchanged until the following evening, forty-two hours after the first seizure.

So confident am I that the free bleeding saved this patient's life, that, had she died while I was dabbling with medicinal agents, I should have considered myself responsible for the fatal result. When such a complete change in symptoms takes place after fourteen hours, produced mainly by the loss of twenty-five ounces of blood, no anti-phlebotomist can be so prejudiced as to ascribe the improvement to any other agency.

I saw this patient not many weeks since, when she told me that she had not the slightest knowledge of my having been her accoucheur or of having given birth to a child. She facetiously remarked: "I only know that this child is mine because my mother told me so." She has never been pregnant since, twelve years having elapsed.

Mrs. W., aged twenty-three, primipara, unusually small in stature, and weighing ninety pounds, was taken in labor during the night, and I was called at 8 A. M. I had not seen the case, although engaged to attend her, but had insisted, among other things, upon having a specimen of her urine for examination at about the eighth month of gestation, or before, if certain symptoms were present. My request, however, was disregarded.

I found her very generally œdematous, even to the vulva, having been unable to wear her shoes for several weeks. The urine was scanty, and the skin pearly in color, but there was no complaint of headache. I tested the urine passed that morning, and found twenty-five per cent. of albumen. Although she appeared to be feeling very well, I feared trouble, and gave her one ounce of Rochelle salts.

The pains gradually increased, and, although the surrounding temperature was very high (it being an August day), there was no thirst or suffering from the heat of the weather.

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Her invariable reply when spoken to, notwithstanding the severity of her pains, was, "I am very comfortable," which will be accounted for further on. Labor progressed fairly well during the forenoon. The bowels moved at 11.15. At 12.30, when spoken to, she said: "Doctor, as it is dark, I think you will need a light." When asked if objects in the room were not distinctly visible, she made no reply. She soon had a violent convulsion. It being impossible for me to protect her tongue, it was severely lacerated, causing considerable hæmorrhage. To epitomize as much as possible, I may state that chloroform, chloral, bromide of potassium, and morphia were used as my judgment dictated. Her intelligence and speech were entirely abolished. There was much jactitation throughout the afternoon. At 6 P. M., after another convulsion, making four up to this hour, I was unable to detect the fœtal pulsations. Labor was not progressing satisfactorily in view of the complications, the perinæum was intensely rigid, and all the tissues were unusually infiltrated.

I believed the case would terminate fatally if the patient were not delivered as soon as possible. A resort to craniotomy seemed to me the proper course to pursue. After laying the question before the husband and mother, notwithstanding their great anxiety for an heir, a ready acquiescence was given. After the most tedious and exhausting operation of the kind that I had ever made, the child was delivered at 7.30 that evening. From this time up to 11 P. M., no convulsion occurred, but no other favorable symptom could be discovered. At this hour, there being not the slightest relaxation in treatment, an increased restlessness was observed, which soon culminated in a general spasm, although chloroform had been used early. From that hour, the clouds seemed to thicken around us, and, being completely jaded, I asked that a young medical friend be called in to aid in carrying out whatever course I might think it necessary to adopt.

From 11 P. M. until 2 A. M., notwithstanding every effort on my part, three more convulsions occurred. The pulse, for an hour or more, had been irregular, being at one time very rapid, at another preternaturally slow, which character I had never, in puerperal eclampsia, failed to change by venesection.

To my faithful young friend I said: "If venesection, with the remedies we have been using, will not save this patient, there is

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nothing left but the final scene." He politely, though decidedly, opposed it. Said I: "Doctor, with the highest respect for you, I shall do it." I knew that the confidence of the family in me was unlimited. I had brought this patient into the world twenty-three years before. I opened a vein in the arm, making a large orifice. As the flow of blood increased, the pulse became more regular and fuller. I kept the fingers constantly applied to the opposite radial artery. The pulse continued to improve until the loss of twenty-four ounces seemed to have accomplished all that was necessary, when the flow was arrested. I continued by the bedside of my patient from this hour until the following evening, noting the recurrence of but one convulsion, at 4 A. M., and giving only a few inhalations of chloroform and one hypodermic injection of a quarter of a grain of sulphate of morphia, when her intelligence began gradually to return. She made a good recovery.

In this, as in the previous case, without venesection, death must have inevitably resulted.

In a conversation with the patient some weeks afterward, she informed me that she had no recollection of anything connected with her labor except an indistinct idea that she saw me as I entered the room when I was first called, which accounts for her frequent answer, throughout the first part of the day of attack, "I am very comfortable." Although my paper has already taxed your patience, I desire to report one additional case:

Mrs. K., primipara, aged thirty-one, upon rising from bed one March morning at 2 A. M., for the purpose of urination, fell from the vessel to the floor, in a convulsion. A homœopathist was called, and, after leaving some remedy, left (evidently not recognizing the true state of the case), to be summoned again after another convulsion. The patient remained unconscious, with occasional spasms, until 8 A. M., when I was sent for and assumed charge of the case. I found a somewhat plethoric woman, compactly built, and profoundly insensible, having been comatose since four o'clock that morning. Bloody saliva was oozing from the mouth, the complexion was becoming cyanotic, there was loud and labored respiration, and, as near as could be calculated, the

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patient was within three weeks of the completion of her term. She had had four convulsions since the attack, and the pulse was very irregular as to frequency and quite firm. I believed that the patient would die if I ventured to try morphia and chloroform without first letting blood. I opened a vein, having decided to lessen the circulation to the extent of relieving the overloaded brain and heart. After thirty ounces of blood had been taken, the pulse steadily became slower and fuller, and the skin, instead of presenting a purplish congestion, was clear and nearly natural in appearance, with a total change in the character of the respiratory movements. I had chloroform ready, and, as soon as deglutition was possible, I gave the usual dose of chloral and bromide of potassium. Not succeeding well by the mouth, I gave these remedies *per rectum* at reasonable intervals throughout the day. I kept the morphia in reserve in case of another convulsion. Chloroform was given but once. An examination *per vaginam* gave no indications of the beginning of labor. Upon catheterization, I obtained only two ounces of urine.

My notes say: "In less than an ounce of urine a teaspoonful of albumen was found." Rochelle salts were given by enema during the following twenty-four hours, until free movements of the bowels were obtained. During the afternoon of the day of the attack, while I was temporarily absent, the bandage on the arm became loosened and more blood was lost. After thirty-six hours had elapsed, consciousness returned, but vision did not. She would direct her eyes toward the place from which a sound came, but said that she could not see the person addressing her. I now endeavored to reduce the quantity of albumen in the urine and to increase the renal secretion, before parturition should add to her danger. Saline laxatives, acetate of potash, digitalis, and slop-diet, with diurnal examinations of the urine by testing and measurement, constituted the programme for six and a half days, when, after she had been down stairs for the day, every symptom being satisfactory, and while sitting upon the sofa, the amniotic liquid began to pass away, with no pain. On this day, the discharge of urine was quite copious, and the quantity of albumen was small. I saw her soon after the amniotic discharge began. A vaginal examination failed to reveal any immediate signs of labor. I left her, with directions to be sent for when pain or any

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unpleasant symptom came on. At 4.30 the next morning, I was sent for, and found her in pain, with a slight "show."

Pains continued to moderately increase during the day. She was cheerful and free from headache. Toward evening, the os uteri was found to be dilating satisfactorily, when she suddenly became restless and said: "I feel as I did once before. Oh, my head!" I gave her twenty grains each of chloral and bromide of potassium, and made her inhale chloroform. As the pulse was quite firm, notwithstanding the treatment for the past six days, I determined upon another loss of blood if, in connection with the chloral, etc., a hypodermic injection of morphia should fail to ward off another convulsion. The effect of the venesection was almost magical; and nothing further occurred to interrupt or mar the progress of the labor, which terminated at 2.30 the following morning. A speedy convalescence followed.

It may seem strange to some why one or more fatal cases under the same plan of treatment are not reported. It affords me great pleasure to be able to state that I have never seen a fatal case which occurred, in the experience of either my father or myself, during the forty years of my midwifery practice, strange as the fact may seem; and, while I do not wish to be understood as asserting that every case, in which the course of treatment I have indicated is carried out, will recover; yet I believe, if this treatment be pursued before consciousness is abolished between the seizures (and usually it is not between the first two), and before the peculiar cardiac action that I have described presents itself, that every case will recover; and I believe that a very large majority of cases will recover under this treatment, even after these grave symptoms have become developed.

I am sure no one can properly charge me with undue haste in arriving at the conclusions which have irresistibly forced themselves upon me; for, notwithstanding my father's success in the treatment of puerperal convulsions by blood-letting, for fifty-eight years, together with my own earlier experience, I approached my belief after, in some cases, an unjustifiable delay in resorting to venesection, and after carefully subjecting all other methods of treatment to the severest test.

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This paper is presented as an epitome of the cases of puerperal eclampsia which have occurred in the practice of two physicians, during an aggregate period of seventy years. While I do not in the main object to the radical change of fashion as regards venesection in the treatment of a large majority of diseases, yet I shall ever plead for the lancet as the sheet-anchor in the treatment of "the convulsions of pregnant and parturient women."

In conclusion, I desire to present the following suggestions:

First. When engaged to attend a case in midwifery, insist upon seeing the patient two months (if so much time is to intervene before labor is expected) before parturition.

Second. Carefully test the urine at times during this period.

Third. If there be much cephalalgia, with or without œdema, and if this be more or less constant, whether the urine be albuminous or not, resort to venesection, taking sufficient blood to relieve the head-symptoms.

Fourth. Warn the patient against all articles likely to unduly tax the digestive apparatus.

Fifth. Insist that the bowels be kept in a soluble condition, especially if there be a tendency to torpidity.

Sixth. When the first professional introduction to the patient is at the beginning of parturition, and the symptoms as described in the third suggestion are present, the treatment there suggested is imperatively demanded; and, should the pains seem inefficient, a hypodermic injection of gr. $\frac{1}{4}$ to gr. ss. of sulph. morphia is an important adjuvant.

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DISCUSSION.

DR. E. M. MOORE.—The paper read by Dr. Colvin is of a somewhat remarkable character, and I think that some criticisms should be made upon it. The extraordinary experience of Dr. Colvin certainly does not correspond to that of his contemporaries. My own experience extends back to the time when bleeding was the fashion; and I have certainly seen puerperal cases in which this treatment did not give relief, but perhaps this was because a sufficient quantity of blood was not withdrawn, as the author has stated, although the bleeding had been quite free. I can not help believing that the elimination from the blood of the poison that is incident to the condition known as albuminuria constitutes the real means of cure of the parturient woman; and it must not be forgotten that, in connection with blood-letting, it had been the universal custom to use a cathartic at once. I believe the author has not mentioned, as a means of producing catharsis, the placing of dry calomel upon the tongue, followed immediately by croton oil, so as to be sure of obtaining a profound action upon the bowels.

DR. COLVIN remarked that the method mentioned by Dr. Moore was practiced by his father, and that cathartics were used in some of the cases which he had reported.

DR. MOORE.—I can not help thinking that the true treatment of albuminuria consists in the use of cathartics, and especially of saline cathartics. I know very well that some of my friends do not agree with me in this opinion, and I do not expect that my views will be accepted by all present at this meeting. I am speaking, of course, of cases of albuminuria which are susceptible of cure, and not of the organic changes which commonly occur in Bright's diseases. I know that there are cases of albuminuria which may recover and which are entirely independent of the parturient state. We also know that the albuminuria of the parturient condition usually disappears when the uterus is empty; but this is not always true, as patients sometimes have convulsions after the expulsion of the uterine contents. Nevertheless, it seems to me that the habit which prevails in the profession of adding to the other treatment of eclampsia the giving of a cathartic, is the most important

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point in the management of this disease. It is the cathartic that clears the blood and thus relieves the head and the kidneys. But it is unfortunately true that, if nothing else be done, the patient may die before the cathartic can have time to operate. If we could find some means of suspending the convulsions for a time, the cathartics would effect a cure. There is no question at all that bleeding is a means by which the convulsions can, for a time at least, be suspended; and I may say that this is capable of suspending almost any condition. The older physicians were in the habit of bleeding for almost everything; and probably all present know that venesection is capable of arresting a violent attack of neuralgia; but, the next day, the neuralgia will be worse than it had been before. I have no doubt that venesection was one of the most valuable remedial agents against eclampsia in former times, as it has the power of suspending the convulsions, giving an opportunity for the action of cathartic medicines; and thus, also, time was gained for emptying the uterus and effecting a permanent cure. Now the question is, Have we any means by which to suspend the convulsions more quickly and better than by bleeding? There are, in the list of therapeutic measures, many things of value which we have been reproached for having cast aside; but we have abandoned these measures, only because we think we have found something that is better. We do not deny the value of the old agents, but we prefer the new as being more efficient. Now we find that the free administration of ether will suspend puerperal convulsions even more effectually than will bleeding. The same is true of chloroform; but convulsions will follow the first blood-letting, and they will also occur after the cessation of chloroform-inhalation. According to my experience, however, so long as the patient continues to inhale the anæsthetic, the convulsions will not return. I always advise beginning the use of the anæsthetic as soon as there is deep snoring and a restlessness which indicates threatening convulsions; and, while in this condition, the patient should not be allowed to come from under its influence until a free movement of the bowels has been obtained or until the uterus has been emptied. Failure is often due to our not continuing the administration of the anæsthetic long enough.

Dr. Colvin has mentioned a case in which the convulsions tended to return with regularity after the lapse of a certain num-

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ber of minutes. All have observed this peculiarity in the convulsions of the puerperal state. The intervals may be half an hour, or forty minutes; and, after having observed this in the course of two or three convulsions, we expect a return about so often, and it seems at each convulsion that the patient must die. In such a case I have remained by the patient as long as four hours, holding a sponge containing the anæsthetic over the face, and by that time, the calomel and croton oil having taken effect, I would remove the sponge. The uterus was emptied the next day, and no more convulsions occurred. I have spoken earnestly upon this subject, and I desire to say that I consider blood-letting an exceedingly valuable agent to suspend the convulsions; but I believe the real means of cure to be the cathartic, and I insist that suspension of the convulsions can be effected more quickly and better by the use of ether than by blood-letting.

Dr. C. G. Pomeroy, of Wayne County.—I shall detain the Association but one moment, but I can not help expressing my views on the important question involved in the subject under discussion. During the reading of Dr. Colvin's valuable paper, and the remarks made by Dr. Moore, I have been thinking of my experience in years past regarding the treatment of albuminuria. All who have reached middle life have seen the lancet used, and have also seen the other measures commonly employed for the relief of puerperal convulsions. I wish, in this connection, to relate the history of a case of the most frightful convulsions that have come under my observation. I was away from home one evening, a distance of seven miles, to see an old lady; and, when about to leave the house, her daughter, twenty-six years of age, a vigorous woman who had been married but three years, said she wished that I would examine her feet. I found her limbs much swollen, and, as she was soon to be confined, I told her she must rest her feet, assume the recumbent posture, and that it would probably be necessary for her to take a cathartic. She placed her hands on the abdomen and said she had pains, and afterward she vomited. I remained with her until two o'clock in the morning. The patient threw up everything taken into the stomach, and it was only after some hours that the vomiting ceased. I had scarcely reached home in the morning, when a messenger came and said that the patient had had a fit just after I left the house. When I returned,

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she was in her fourth or fifth convulsion, which was the most frightful I had ever seen. I bled her immediately, until I was of the impression, from the character of the pulse and the appearance of the face, that a sufficient quantity of blood had been withdrawn. I then ruptured the membranes and gave calomel, and sent for croton oil. Dr. McIntire was called in consultation, and we, with the assistance of a young physician, gave chloroform until 4 P. M., when the child was born, the woman having been unconscious from the time of the first convulsion. The patient was put to bed and soon had a movement of the bowels, passing an enormous quantity of green tomatoes and green corn not properly masticated and not at all digested. The night before, she had thrown up what were supposed to be green pickles. Five or six ounces of urine were withdrawn, and the patient was left in charge of the young physician, who had instructions to give chloroform in case the convulsions should return. The next day, the young physician said the woman had had a convulsion regularly every hour during the night. He was asked if he gave chloroform, and replied that he had tried to do so, but, as the patient struggled, he abandoned the attempt. Arriving at the patient's bedside, I found that she had continued to have convulsions and was unconscious; but the convulsions were less severe than before. An enema was followed by another evacuation of an enormous quantity of green corn and tomatoes. The next morning, the patient was on the way to permanent recovery.

In another case, I gave chloroform for twenty-four hours, preventing convulsions except for a few moments when the anæsthetic was withdrawn. The patient began to recover after an evacuation of the bowels had been secured. I believe, with Dr. Moore, that the most efficient means for controlling puerperal convulsions is to secure a prompt and free action of the bowels.

Dr. B. L. Hovey, of Monroe County.—Probably most of the gentlemen present have years ago practiced venesection and used cathartics in puerperal eclampsia, and more recently have employed chloroform and cathartics. It has also been the practice to empty the uterus; and I believe that by this means we can best control the convulsions. In the first two cases which I attended as a young man, the patients went on to recovery after delivery of the child; in one case, chloroform having first been

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resorted to, and, in the other, venesection having been performed twice. Cathartics were also administered. While I agree with what Dr. Colvin and Dr. Moore have said, I still believe in emptying the uterus, as the essential means of promoting recovery.

Dr. W. H. Thayer, of Kings County.—I wish to say a word with regard to another means for controlling puerperal eclampsia. I fully believe in the principles enunciated by Dr. Moore. Of course, the first step to be taken is to relieve the kidneys, and to move the bowels by a cathartic. But, in order to gain the time in which to do this, I believe in the use of ether. There is another remedy, however, which some of the profession in Brooklyn found to be very efficient, and that is the veratrum viride, in drachm-doses of Norwood's tincture. This agent will reduce the circulation rapidly and permanently, without any ill effects. It should be repeated as often and continued as long as may be indicated by the character of the pulse. By this means, the pulse is speedily reduced to a normal rate, and while it is kept there the convulsions will not recur. Permanent relief can be secured after emptying the uterus and securing a free evacuation of the bowels.

Dr. Colvin.—In my paper I have simply stated certain facts, without insisting upon any theoretical views which I may entertain with regard to the mode of relief in the treatment of puerperal convulsions. If, for instance, we were to discuss the subject of scarlet fever or rheumatism, the views of every one would probably remain unchanged. There is one point, however, that seems to have been lost sight of in the discussion, which is, that in every serious case of puerperal eclampsia there is irregularity and rapidity of the pulse; and, until these conditions are controlled, we can not save the patient. I have insisted, in my paper, on the necessity of proper regulation of the diet. In one case, I gave the patient advice as to diet, but she afterward had a convulsion; and, when an emetic was given, she vomited a large quantity of turnips. The convulsions then ceased. Had the veratrum viride or a cathartic been given, the patient would have retained the turnips long enough to have endangered life. The condition of the pulse is the indication for bleeding; and we should not hesitate on account of the apparently weak condition of the patient. I approve of emptying the uterus; but it may also be necessary, as it was in one of the cases reported, to resort to venesection.

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Dr. John Cronyn, of Erie County.—I can not agree with Dr. Colvin in the statement that our views would probably remain unchanged, notwithstanding discussion on this or on other subjects. I have been much pleased to listen to the paper which Dr. Colvin has read, and it is my opinion that the lives of many women have been saved by the old mode of treatment by the use of venesection and cathartics. Formerly the condition under discussion was spoken of as apoplectic, epileptic, and hysterical; but it was undoubtedly the same as that recognized at the present time as albuminuria; and the treatment then adopted, and now too much neglected, has saved life.

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NOTES ON PEAT AS A SURGICAL DRESSING.

By W. G. Tremaine, M. D., of Erie County.

Read by Title, November 19, 1884.

The history of the treatment of wounds is, for the most part, a sad record of human folly and of the most absurd fantasies of the human mind. All kinds of materials have from time to time been accredited with healing virtue, and have been used empirically, by those practicing the healing art, with a blind faith in the efficacy of the application itself. Amid these absurdities, it is refreshing to find that there were those who thought for themselves and observed carefully the processes of nature. For instance, said Galen: "The first thing the surgeon has to do is to see to it that he may not inflict injury, and not interfere with Nature in her attempts to heal."

Wortz, a master-surgeon of the sixteenth century, said: "Many a wound, if only kept clean and dressed correctly, will heal better than if you apply all your pastes and herbs." With the more accurate knowledge of pathology in modern times, the whole philosophy of the treatment of wounds may be summed up in the term, physiological rest; or, in other words, the prevention of all disturbing influences, either from within or without, that may interfere with or retard the reparative process. All intelligent surgeons now recognize the value of non-interference with a wound except for the purpose of removing one or another of these disturbing influences. It is, therefore, clearly the duty of the surgeon to employ that form of dressing which will best carry out these principles. The

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essentials, consequently, of a good dressing are: First, sufficient absorbing power to rapidly remove excessive wound-exudates; second, to prevent decomposition of these exudates; and third, to accomplish the preceding requirements with as little mechanical disturbance of the wound as possible. There are several substances now in use that carry out these indications in a more or less satisfactory manner.

About four years ago, a laborer, working in the neighborhood of Kiel, hurt himself badly in the hand and forearm. In the absence of any dressing material, the injured limb was surrounded with black peat obtained from a peat-moor where the man had been at work. The pain soon ceased. The dressing was not disturbed for eight or ten days, when the patient presented himself at the surgical clinic in Kiel. The condition of the man is thus described by Dr. Neuber: "A thick layer of dried, black peat covered the forearm. After the arm had been cleaned in several baths, and the parts sponged off, we saw, to our great astonishment, a wound partly filled with beautiful granulations; partly there was primary union. The surroundings of the wound were perfectly without reaction. Until now no suppuration had started. Later the patient had the full functions of his hand."

Suggested by this incident, peat was extensively used as a surgical dressing in the clinic at Kiel by Dr. Neuber, a full account of which is given by him in "Anleitung zur Technik der antiseptischen Wundbehandlung und des Dauerverbandes."

According to a chemical analysis, peat contains: moisture, 20·98; ash, 5·07; organic matter, 73·95; nitrogen, 0·46. Its absorbing power is remarkable. It takes up nine times its own weight in water. It has no irritating quality when applied to wounded surfaces. Some extraordinary stories are told of its preservative qualities.

In Germany, Moorish corpses have been discovered imbedded in the black peat, which have been preserved for centuries. A resident pupil in the hospital informs me he has seen, in Ireland, bodies of animals dug out of peat-bogs in a perfect state of preservation, where they must have lain for years. He

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also says he has seen butter, perfectly fresh and palatable, packed in a crude form of tub, supposed to have been placed in the peat by the Danes.

About a year ago, I began the use of peat at the Buffalo Hospital of the Sisters of Charity, a hospital of one hundred and eighty beds, and also at the Emergency Hospital. From the large number of surgical cases received and treated during the year, nearly two hundred of them being cases of accident (railway and other), ample opportunity has been afforded to test the value of this dressing. The peat used was obtained in packages containing one hundred pounds, imported from Germany by M. Lienau & Co., No. 2 Jones Lane, New York. The manner of using it is as follows: Bags of different sizes, made of hygroscopic gauze, or the fabric known as cheese-cloth rendered hygroscopic by boiling in an alkaline solution, are filled with the peat, and, after being moistened with a solution of mercuric bichloride, 1 to 1,000 parts, are applied directly to the wound, after it has been thoroughly cleansed and irrigated with the mercuric-bichloride solution. This dressing is not disturbed until completely saturated with the discharges, unless pain or rise of temperature should indicate the necessity of removing it. Frequently one dressing will suffice. Possibly the best method of illustrating our results will be to relate a few cases taken from the records of the hospitals.

Case I.—E. G., aged twenty-eight years; native of Germany. Admitted March 15, 1884. While coupling cars this morning, his right elbow was caught between the buffers, producing a compound comminuted fracture of the elbow-joint, with a lacerated wound on the anterior aspect of the joint, laying bare the brachial artery for three inches. The elbow-joint was resected, the internal and part of the external condyle being removed, with the coronoid and part of olecranon. A drainage-tube was inserted. The wound was thoroughly irrigated with mercuric-bichloride solution, 1 to 1,000. The wound was united with catgut sutures and wrapped in gauze-bags containing sublimated peat. In five days the dressing was removed. There was no suppuration. The wound was free from inflammation and fresh peat-bags were ap-

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plied. The dressings were not removed for ten days, when the wound was found completely healed. Three weeks after the operation, there were fair flexion and extension.

Case II.—George L., aged twenty-five; native of England; admitted June 14th, with compound fracture of the tibia and fibula in the upper third. The wound was thoroughly irrigated with mercuric-bichloride solution. The limb was enveloped in sublimated peat-bags and placed in fracture-box. No surgical fever and no suppuration followed. Recovery was complete, with a useful limb, in six weeks.

Many other cases might be cited from our records, but the above will sufficiently illustrate the method of using the peat and the results obtained.

Finally, we have found it a valuable surgical dressing, particularly in lacerated wounds and compound fractures. In comparison with peat, we are now using wood-flour, charged with mercuric bichloride and naphthalin, with some advantages in favor of the latter; *viz.*, greater absorbent power, the wood-flour taking up twelve times its weight of water, and, in addition, the stain of the discharges being more readily seen than in the darker peat.

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FRACTURE OF THE FLOOR OF THE ACETABULUM.

By Charles C. F. Gay, M. D., of Erie County.

Read November 19, 1884.

Surgeons concede the difficulty, if not the impossibility, of recognizing this fracture. There are no symptoms, except pain, indicative of this lesion; hence writers affirm that its presence can only be suspected. Furthermore, it is believed this fracture rarely exists, and that when it does occur it is caused by violent, rather than slight, blows over or upon the great trochanter.

Observation of cases of hip-injury in hospital and private practice, examination of cabinet-specimens, dissection, and limited experiments upon the cadaver, have led me to conclude that this lesion occurs much oftener than has hitherto been supposed, and that great violence is not an essential element in its causation.

Unable, as I am, to indicate any new sign of the presence of this injury, and since nothing more than rest can be advised for patients with suspected acetabular fracture, it would seem a waste of time further to agitate the subject; but, having seen cabinet-specimens of union of this bone, when, during life, fracture had not been recognized or knowledge obtained of serious injury, I am impressed with the importance of calling attention to the subject, of suggesting the possibility that slight causes may produce the injury and that it is not so rare as we may have believed, and of warning against the danger arising from too frequent examination and unnecessary manipulation in order to establish the nature of the lesion.

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When fracture occurs at the floor of the acetabulum, the floor may be traversed by a single fissure, the line of fracture may run in a semicircular direction, or it may be angular and the bone resolved into its three primitive pieces, which, according to authors, is a very rare fracture. Sir Astley Cooper reports one case, Sanson one, and Neill another; and these cases are referred to by Erichsen, Hamilton, Agnew, and others, because they are rare. Other cases have been reported of the same kind, with either recovery or bony union which has occurred without displacement.

Fracture of the floor of the acetabulum may occur alone or be associated with fracture of the innominate bone. It may take place with or without displacement of the head of the femur.

This subject requires me to consider briefly the structure and the relations of the acetabulum. The anatomist informs us that the thinner parts of the bone, as at the floor and the center of the iliac fossa, are composed entirely of compact tissue.

The cavity may be divided into three component parts. At its deepest part, the bone is so thin that it transmits light; it is so frail that it is strange it should so often escape fracture; but the upper and posterior portion is formed by the thickest and strongest part of the os innominatum, and is capable of bearing great weight and of resisting immense force.

"The acetabulum is partly articular, partly non-articular. The articular portion is of horse-shoe shape. It is altogether deficient at the cotyloid notch, which corresponds with the gap of the horse-shoe.

"The non-articular part extends from the cotyloid notch as a rough recess in the floor of the acetabulum, and corresponds to the area inclosed by the horse-shoe."[1]

This is a wise provision in the construction of this cavity, since in this way the thin portion of bone is measurably protected from violence. Were the thin and delicate portion of the acetabulum in apposition with the head of the femur, it would not be possible, without fracture, to resist violence or to

[1] Morris, "Anatomy of the Joints," London, 1879, p. 318.

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withstand even the weight of the body. By this peculiar and wise anatomical arrangement, the deeper portion of the cavity is protected against friction, while at the same time it is an element of weakness as regards any provision against injury from undue force or pressure. It is easy to conceive how the impact of a violent force, which would drive the head of the femur against the circular and projecting rim of the articular portion of the cavity, may cause fracture of the thinner, without fracture of the thicker portion of the bone.

The ease with which this bone can be fractured may be shown upon the cadaver. Place a piece of sole-leather over the trochanter to protect the soft parts, then strike in an oblique direction upward with a mallet, and you will fracture either the neck of the femur or the floor of the acetabulum. Fracture of the floor of the acetabulum may occur at any age, but it is most likely to occur in the young subject, and then without the application of much force. Take the case of a man who falls, perhaps but a short distance; he strikes upon the trochanter; he lies helpless, or, it may be, is able to rise; he complains of pain, and thinks he may have fractured his hip; the pain is aggravated when any attempt is made to move; he is assisted to bed; he is subjected to repeated examinations without disclosing any injury save slight contusion of the soft parts. There is no shortening, eversion of the limb, or crepitus. The patient occupies his bed for two or three weeks, gets up and walks about the room with the aid of crutches, and in two or three weeks more is able to go about without support. The injury has apparently resulted in nothing, unless it be acetabular coxalgia. There is no deformity. What could have been the nature of an injury causing such persistent pain? Was it possible to ascertain its nature? Was the pain caused by contusion of the soft or hard parts? No. Had he intra- or extra-capsular or mixed fracture? No. It perhaps ought to be suspected that the lesion was a fracture of the floor of the acetabulum without displacement of the head of the femur.

This is a type of cases which fall under the observation of every surgeon, the diagnosis of which is very difficult to make

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out. The two following cases—one a case reported by Dr. Sands,[1] the other my own case—illustrate the difficulty experienced in diagnosticating this lesion.

Dr. Sands calls his case a "perforating fracture of the acetabulum."

The patient, aged sixty-six years, had fallen in a dumb-waiter well. When first seen, he was suffering severely. In forty-eight hours after the injury, Dr. Sands noted the facts already observed by Dr. Levings; *viz.* the limb was not shortened nor everted; the heel could be elevated; the limb was capable of free rotary motion; the trochanter described the arc of a circle; and there was no crepitus. An autopsy revealed the fact that the head of the thigh-bone had penetrated the floor of the acetabulum, and that there was fracture of the pelvis.

My own case is reported by Dr. McBeth, house-surgeon.

Ella Smith, American and unmarried, was brought into the hospital, April 26, 1880. She had been the mother of one or more children. She contracted syphilis in September, 1879. Six hours previous to entering the hospital, she had fallen from a veranda to the pavement, a distance of thirteen feet, striking upon her right hip. Dr. Frederick and myself [Dr. McB.] gave her ether and made an examinatiou, finding slight eversion of the toe and crepitus. There was no shortening, each limb measuring thirty inches and a half. We did not consider a diagnosis of intra-capsular fracture positive, but, as relief was afforded by extension, we put on a weight of eight pounds.

April 27th.—The patient was seen by Dr. Gay, who made an examination and carefully measured the limbs, finding them the same as on the night before. The patient stated to-day that the eversion of the toe was natural, having existed from childhood. There was no crepitus. The dressings by extension were therefore discontinued, thus allowing muscular action to shorten the limb if there were fracture.

May 5th.—This is as early as it was deemed advisable to make a further examination, on account of dysmenorrhœa from which

[1] Sands, "Perforating Fracture of the Acetabulum," "Medical Record," N. Y., 1877, vol. xii, p. 93.

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the patient suffered. She was etherized, and another examination was made. The injured limb was a trifle longer than the limb on the sound side. There was no more eversion and no crepitus. As the patient was somewhat relieved of pain by slight extension, Dr. Gay advised its continuance with use of the eight-pound weight. For a time after this, she was in a typhoid condition and evidently suffering from septicæmia, having chills with fever, and a temperature as high as 105° Fahr. There was tenderness over the caput coli, and the abdomen was tympanitic. She sank gradually, with little pain, and died May 19th. There were rapid post-mortem changes.

Autopsy, May 20th; present, Drs. Gay, Diehl, Peterson, and Frederick. In cutting down upon the hip, we found a large quantity of pus evidently coming from the abdominal cavity, as it could be forced through the opening in the hip by pressure over abdomen. The vagina was filled with pus. There was a fracture of the acetabulum in three directions following the original line of union, involving a fracture of the innominate bone.

There is no sign in either of these reported cases that could possibly suggest the lesion revealed by dissection; and they therefore confirm the correctness of statements made by writers. My house-surgeon thought he detected crepitus when the patient was first examined, but crepitus was not found to exist at the examination made the next morning. It is easier to presume that he was mistaken than to believe that crepitus existed. If crepitus be ever observed, it must be in consequence of co-existent fracture of the innominate bone.

"There are no signs clearly distinctive of this fracture."[1] If fracture of this bone can only be suspected, then diagnosis of this lesion has for the first time to be made.

There is no shortening, no eversion, no crepitus, whether there be displacement of the head of the thigh-bone or not; but there is pain in the hip, which is aggravated by movement of the joint, by pressure upon the trochanter, and by attempts to turn the patient upon the side. I have said that pain is the only sign of this fracture; it exists with a severity equal to

[1] Agnew, "Principles and Practice of Surgery," Philadelphia, 1878, vol. i, p. 929.

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that which accompanies fracture of the cervix femoris, but without the evidence of fracture which the latter reveals. Therefore, severe and persistent pain, in the absence of positive symptoms of fracture, is a sign of some significance in this lesion. Explorations through the rectum or vagina may assist in determining the nature of the injury.

Prognosis.—Fracture of the acetabulum without displacement of the head of the thigh-bone does not constitute a fatal, or even a dangerous injury, provided the lesion be early suspected and the patient be let alone. Fracture with displacement is not necessarily fatal, as may be shown by the following remarkable case under the care of Charles Hewitt Moore,[1] of Middlesex Hospital. This, I suppose, is the case referred to by authors:

James Thomas Horsfield, who died at the age of sixty, was crushed about the pelvis, several years before, by a piece of timber. The left limb was shortened, and its principal motions were abduction and moderate flexion, while circumduction and extension were impossible.

Dissection of the Pelvis.—The left innominate bone was broken in the acetabulum into three pieces, corresponding to its original segments. These pieces were separated by the head of the femur having been driven through them into the cavity of the pelvis, where it rested upon the sacrum, below the promontory. The trochanter had worn a new socket upon the brim of the acetabulum. The right innominate bone was broken just in front of the acetabulum. Both ischio-pubal rami were broken. None of the fractures had united with ossific matter. Owing to this fact and to the fact that the pubes had been separated from all connection with the main body of the pelvis, the former (pubes) was displaced upward (possibly by muscular action) and backward, thus materially narrowing the pelvis antero-posteriorly. The pubes was also displaced laterally; *i. e.*, somewhat twisted. As the person, in walking, bore most of his weight upon the right thigh, the corresponding ilium, which had now no support from the pubes, became bent toward the spinal column.

[1] Moore, "An Account of a Case of Fracture and Distortion of the Pelvis," etc., "Medical Times," London, 1851, New Series, vol. ii, p. 484.

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If recovery be possible under adverse conditions such as the report of this case reveals, no one need hereafter despair of recovery in any case.

Treatment.—But little can be said upon the subject of the management of these cases. The surgeon wants less to know what to do than what not to do. Meddlesome surgery can not be advised. Rest of the joint is of the first importance. Whenever, therefore, a fracture is not made out but is suspected, the patient should be let alone as much as possible, and the limb left at rest in an easy position, with or without moderate extension, according as it is grateful or otherwise to the patient. In the case I have reported, it is quite probable the patient was deprived of her only chance of recovery by repeated examinations, two of which were entirely unnecessary, since they inflicted injury, without leading any nearer to a correct diagnosis.

NOTE.—At the conclusion of his paper, Dr. Gay exhibited two specimens; one of recent fracture, the case of Ella Smith, and the other a specimen of fracture with osseous union.

DISCUSSION.

DR. DARWIN COLVIN, of Wayne County.—The paper read by Dr. Gay has of itself amply repaid me for having come to the meeting of the Association. I can now go home and make a diagnosis in the case of a man who fell from an apple-tree about two weeks ago and sustained an injury which confined him to bed. He was unable to raise the heel from the bed, and I expected, on examining the patient, who was an old man and had fallen upon the side, to find a fracture; but the examination proved not to be satisfactory. No crepitus was obtained. The patient is now going about on crutches. In another case, that of an old lady who had fallen upon the hip, I expected to find evidence of fracture of the neck of the femur, but found none, and the patient now is able to walk about with the aid of crutches. I feel that much light has been thrown upon these cases by the paper which has been read by Dr. Gay.

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Dr. John Cronyn, of Erie County.—I desire to thank Dr. Gay for his paper, as it has thrown light upon a case now under my observation. The patient is a brick-manufacturer, who three weeks ago fell a distance of thirteen feet, striking upon the left hip. I saw him shortly after the accident, but could find no evidence of shortening or of eversion ; the patient, however, was suffering greatly from pain. I placed him upon the back, enjoining perfect quiet. I had thought that the man would be about on crutches soon ; but I feel satisfied that, if any marked injury have occurred, it must have been fracture of the base of the acetabulum. I shall follow Dr. Gay's advice not to try to do too much.

Dr. Brown, of Chemung County.—About a year ago, I was called to see a lady who had fallen a distance of several feet, striking upon a stone, and afterward complained of pain in the hip. I supposed, from the distance of the fall, that I should find fracture, but could obtain no evidence of shortening or of crepitus. Extension with a weight relieved pain, and it was only after four or five weeks that the patient was able to go about on crutches. She finally made a complete recovery, without any shortening. I have no doubt that it was a case of fracture of the acetabulum.

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A CASE OF TUBAL PREGNANCY ADVANCED TO FULL TERM WITHOUT RUPTURE, THE FŒTUS REMAINING FOURTEEN YEARS IN SITU. REPORT OF THE AUTOPSY.

By J. G. Orton, M. D., of Broome County.

Read November 19, 1884.

Mrs. W., aged forty-five years, gave birth, at the age of twenty-seven, to a living child, and again became pregnant at thirty-one. No unusual circumstances occurred during the whole period of gestation, but when the full term was completed an abortive effort at parturition was made. The patient not being delivered and all pains simulating labor ceasing, it was concluded that there was an error in the diagnosis. The idea that she was pregnant was abandoned, and the tumor-theory took its place. However, she passed through a long period of sickness, and became emaciated, anæmic, and very feeble. After about a year and a half, her health improved, menstruation returned and became regular, and she regained her usual weight and healthy color.

I obtained these statements from the patient and her husband. They resided during this time in West Suffield, Conn., and were supposed to have been under the care of competent physicians.

I was first consulted by this patient, October 24, 1882, and found her suffering from considerable pain in the region of the rectum. She was passing a yellow, oily-looking substance from the bowels, which, upon careful examination, proved to be quite pure fatty matter, becoming hard on cooling, like tallow. The uterus was *in situ* and normal in size, as was determined by measurement with

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the sound. Her bowels had long been habitually constipated, and I understood that the case had been recently diagnosticated "cancer of the rectum."

Upon making a digital examination, I found an opening through the walls of the rectum at a point about four inches above the anus, near Douglas's pouch, and about half an inch in diameter. Upon penetrating this opening with my index-finger, I distinctly felt a hard body, and, finding it movable, sent for a long bullet-forceps. On passing this along my finger to the opening, I seized the foreign body, and, on removing it, I found, to my surprise, that it was the right tibia of a full-grown fœtus. A considerable quantity of the yellow, oily fluid immediately flowed from the parts. The next day I repeated my explorations, and succeeded in removing several of the vertebræ. From this time, about every alternate day, I made efforts for the removal of the bones, and was generally successful in collecting quite a number at each operation. They were very clean, being entirely free from muscular or tendinous adhesions. The aperture in the rectum was gradually enlarged by dilatation until it was about two inches in diameter. The patient experienced considerable pain during these manipulations, and could only endure them for a short time on alternate days. A decided expulsive effort like uterine contractions was apparent whenever the parts were irritated. The immediate friends were opposed to the administration of any anæsthetic; however, I was succeeding very well in my operations, and my patient seemed to improve in strength and spirits after the first discharge of the accumulated liquid and the removal of some of the bones. I had taken away about one hundred of the fœtal bones, when the patient was attacked with a severe form of diarrhœa, which was prevailing quite extensively in Binghamton during the months of January and February of the year 1883. This disease, in connection with her previous feeble condition, was too much for her to endure, and, rapidly sinking, she died, February 3, 1883.

REPORT OF THE AUTOPSY (thirty-six hours after death).—My esteemed friend, Dr. C. P. Tucker, of New York city, who happened to be in Binghamton at this time and who had seen the case with me in consultation, kindly consented to make the

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autopsy. He was aided by my assistant, Dr. W. F. Race. I recorded the following notes:

Rigor mortis was well marked. The abdominal cavity being laid open, the walls were found thin and pale, and the bladder, uterus, and intestines *in situ* and normal in character, with the exception of some recent inflammation in a limited portion of the large intestines. The agminated patches were enlarged, and some of the solitary glands were eroded. Circumscribed portions of the abdominal peritonæum were studded with evidences of recent inflammation.

The left Fallopian tube, ovary, and broad ligament were normal in size and character. The liver was fatty and somewhat broken down in structure, but not enlarged. The stomach, kidneys, and spleen were nearly normal.

Upon the right side of the median line, was found a sacculated tumor extending from the brim of the pelvis well down into Douglas's pouch. It was firmly adherent to the rectum, into which a free opening existed; and it was also attached to folds of the intestines by recent peritoneal inflammation. The tumor, with all its attachments, was removed from the body, and a careful dissection revealed extensive expansion of the Fallopian tube. The sac consisted of peritoneal, muscular, and mucous coats, in no wise compromising the uterus, or, on the other hand, involving the ovary, as that organ was found upon the outer surface of the sac, reduced to about one third of its normal size, and even the fimbriæ of the tube were distinctly traceable.

Upon laying open the tumor, the remaining bones of a full-grown fœtus were exposed. They were comparatively clean, with the exception of a little cartilaginous attachment on some of the vertebræ.

I do not propose to theorize regarding this case, but have simply studied the facts and the conditions found; and, without attempting a rehearsal of the literature of tubal pregnancy, it will be sufficient to say that it is fully conceded, I believe, that its continuance to full term without rupture is exceedingly rare; so rare, indeed, that I have failed to find the record of any case occurring in this country. I shall only further remark that it

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had been my intention, after removing entire all the bones possible *per rectum* through the accidental opening, to crush the remaining larger ones, the tables of the cranium, and so effect their extraction.

I desire to call the attention of the Association to the following points, and to ask for their discussion:

1. Do experience and theory justify the conclusion that extra-uterine pregnancy of the tubal variety, continuing until full term, is rare?

2. What surgical interference would have been advisable in this case, both with and without the light revealed by the autopsy?

I here present for inspection by the Association the fœtal bones as removed both ante mortem and post mortem, and, if acceptable, shall place them, together with the sac and parts adjacent, as removed from the body, in the museum of the New York Woman's Hospital.

DISCUSSION.

Dr. I. E. Taylor, of New York County, referred to a case which occurred in Bellevue Hospital, the patient being eight and a half months advanced in pregnancy. He was sent for, as she had "fainted," but she died just as he arrived. Post-mortem examination showed tubal pregnancy, eight and a half months advanced, and death had taken place from hæmorrhage proceeding from a vessel of the Fallopian tube. The specimen was placed in the Wood Museum. He said that the literature of the subject shows that cases advanced to that stage are very rare.

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EXTRA-UTERINE PREGNANCY, WITH AN ACCOUNT OF TWO CASES AND THEIR TREATMENT.

By Nathan Bozeman, M. D., of New York County.

Read November 19, 1884.

I think I am safe in saying that it has been only by the closest and most careful study of the diagnosis of some of the graver diseases of women, that surgeons have been enabled to surmount the difficulties of treatment and to give to the department of gynæcology those brilliant practical results in which our own country claims so large a share. This fact finds illustration in the advances made in the study of uterine and ovarian tumors, of the various injuries incident to parturition and their complications, and, more recently, of the necessities of prompt laparotomy in connection with tubal pregnancy. The manner in which this high aim of scientific thought has been carried out and the results thereof utilized in the several lines of investigation indicated, it is not my purpose on the present occasion to discuss. I propose simply to speak of the dangers of extra-uterine pregnancy, its treatment, and the importance of early and accurate diagnosis in this condition, as illustrated by two interesting cases of this abnormity, which have recently come under my observation.

The dangers of extra-uterine pregnancy dependent upon anatomical conditions, resolve themselves, practically, into, first, the immediate, and, second, the remote. The immediate dangers are those arising, within the earlier months of pregnancy,

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from the lodgment and growth of the impregnated ovum in some portion of one or the other of the Fallopian tubes, the dangers of the lodgment always decreasing in the ratio of its approximation to the abdominal extremity. The remote dangers are those pertaining to the impregnated ovum, as regards its growth and development, possibly to full term, in its relationship with the ovary alone, with the ovary and fimbriated extremity of the Fallopian tube jointly, or with some point in the peritoneal cavity, whether before or after the death of the fœtus, or in connection with normal pregnancy as a complication.

With regard to the study of the diagnosis of tubal pregnancy and the immediate dangers arising from rupture of the cyst and the resulting hæmorrhage, I feel warranted in stating that a more important and practical impulse was given the subject in 1867 than at any time before, by the late Dr. Stephen Rogers, of this city ("Transactions of the American Medical Association"); and, for the deductions then made as to the proper kind of treatment, science is certainly under lasting obligations to him.

It is true that Dr. Rogers contributed no astounding record of successful clinical results from his careful study and observations in connection with the subject; but what he did leave as a precious heritage to us, was his earnest conviction that the immediate dangers above indicated should always be met and combated by a prompt resort to the operation of laparotomy and the controlling of hæmorrhage wherever found in the abdominal cavity, a principle of practice which has been fully recognized and appreciated only within the last year or two.

I confess it was the close study of the diagnosis as found embodied in his able memoir that first imbued my mind with the importance of the subject and determined me to make an application of the teachings therein inculcated, whenever an occasion offered.

Notwithstanding the great strides that have been made in gynæcology since the date of Dr. Rogers's publication, comparatively little has as yet been accomplished toward placing the important principle of practice enunciated by him upon a

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sound basis and disarming tubal pregnancy of the terrors that have so long surrounded it.

To Mr. Lawson Tait, of England, more than to any surgeon in any country, we are indebted for successful clinical results, which not only stamp the procedure with a value never dreamed of by Dr. Rogers, but at once place it in the foremost rank as regards practical availability and usefulness. In an article entitled "Five Cases of Extra-uterine Pregnancy operated upon at the Time of Rupture" ("British Medical Journal," June 28, 1884) he says: "I desire to place on record this, the first series, as I believe, of cases of extra-uterine pregnancy operated upon at the time of rupture—that is, from the tenth to the thirteenth week." After speaking of the difficulty of diagnosis and the doubts arising therefrom as to the propriety of operative interference in this class of cases, he further says: "If, however, it be found that the patient has been eight weeks or more without a period, that there is a pelvic mass fixing the uterus and on one side of it, and that sudden and severe symptoms of pelvic trouble come on, the rupture of a tubal pregnancy may be at once suspected, and if an operation is to be done, and it clearly ought to be done, it must be done without delay." In conclusion, in speaking of the pathology and of the results obtained by him, he says: "These cases all confirm the view of the pathology of extra-uterine pregnancy which I advanced many years ago, that in origin it is always tubal, and that its varieties depend merely on the direction in which rupture occurs. These results also confirm the soundness of the policy of interfering early in such cases, for four cases out of the five have been easily and completely cured of one of the most formidable conditions of pregnancy."

Nearly a year ago Dr. Charles K. Briddon, of this city, recorded ("Annals of Anatomy and Surgery" for Dec., 1883) a most interesting case of tubal pregnancy, in which rupture of the cyst occurred in the eighth week, and he was called upon to operate (Oct. 29, 1883), under circumstances truly appalling, on account of the suddenness and profuseness of the hæmorrhage. He says: "Part of the ovum, one inch and a quarter

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in diameter, was found protruding from a rent in the left Fallopian tube close to its uterine extremity." The patient, a young and healthy woman, died at the end of forty-seven hours. So far as I know, this was the first operation of the kind performed in this country.

Strange to say, it was only two or three weeks after reading Mr. Tait's article, that I was called upon (August 21, 1884) to operate in my first case of tubal pregnancy, after an experience in the profession of more than a third of a century. This case, and another of abdominal pregnancy, to which I was called in consultation only a month later, form the basis of this communication.

I shall not here point out particularly the line of practice by which the remote dangers of abdominal pregnancy are to be met. Dr. T. G. Thomas and other writers have already brought this part of the subject prominently before the profession and have shown excellent clinical results.

The next question relates to the prevention of the immediate dangers of extra-uterine pregnancy by the employment of electricity. This principle was first applied by Bachetti, of Italy, in 1852, by Braxton Hicks, of England, in 1866, and, in our own country, by Joshua B. Allen, of Philadelphia, in 1869. (See an article entitled "Electricity in Extra-uterine Pregnancy," by Henry J. Garrigues, A. M., M. D., "Trans. of the Am. Gynæcological Society," 1882, p. 184.) The practice has for its object the early destruction of the life of the growing fœtus, and, consequently, the prevention of rupture of the tube-cyst. The proposal of such a method of treatment and the almost universal satisfaction that has attended its employment up to the present time must be regarded as the strongest evidence that could possibly be offered of the close study of the subject and of the great value of the principle. It is to be clearly seen, from the acknowledged success attending the employment of the principle, especially in tubal pregnancy, that, in skillful hands, it will at no distant day supersede entirely the plan of quietly trusting to luck, by which so many valuable lives have been sacrificed. But the difficulties surrounding this practice,

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notwithstanding its wider range of application, can not be compared with those attending the operation of laparotomy. Each principle, however, has its sphere of usefulness, and the seasonable application of electricity, as indicated by the conclusions of careful diagnosis, can not fail in the future to yield the most encouraging clinical results.

It should unquestionably be the rule, in all cases of extra-uterine gestation seen in the earlier months, to destroy the life of the fœtus, and, even in cases where this condition is suspected but the diagnosis is open to doubt, to apply electricity, which, for safety and certainty, is emphatically the remedy. With this principle more widely recognized, there will be fewer instances demanding a resort to the graver procedure of laparotomy, and it is to be hoped that the matter of diagnosis and the employment of this mode of treatment may eventually become so accurate and effectual that there will be no occasion for the latter operation.

A word may now be added with regard to the ætiology and mechanical philosophy of extra-uterine pregnancy, points which I need scarcely say are difficult of explanation. The belief has become generally accepted that women with long-enforced sterility after fruitfulness are more prone to ectopic gestation than those passing through the fruitful period of their lives in the regular exercise of their procreative functions; but exactly why a certain number of widows should be more liable to it than an equal number of married women, no satisfactory reason has as yet been assigned and probably never will be. I think, myself, that the explanation is to be found in backward displacements of the uterus.

I maintain that, in retroversion, and especially in retro-lateroversions of the organ, one ovary is often dragged down and fixed, with a corresponding displacement of the Fallopian tube, at a lower plane in the pelvis than that of the same structures on the opposite side, and that, as a result of such malposition, there is necessarily more or less rolling or turning of the uterus to the affected side. By this form of displacement, not only is the axis of the uterus placed on a line horizontal with

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that of the vagina, but the entrance into the uterus of the Fallopian tube on the same side is depressed to a lower level than the opposite one. This change of relationships in the parts and in their aptitudes, as regards the cervical canal, the plane of the cavity of the uterus, and the utero-tubal orifice, is highly favorable to the entrance of the spermatozoa and their migration in a continuous line. In the reversed order of relationships of the same structures, and from the same anatomical considerations, the aptitude of the affected Fallopian tube, in its lower or fimbriated extremity, to receive and to convey the ova from the corresponding ovary, is in a like degree diminished. From the movements, then, of the spermatozoa out of the vagina, which are almost unopposed by physical obstructions and the operation of gravity, and of the ova coming from the corresponding prolapsed and fixed ovary almost completely opposed by the law of gravity, it is easy to see that the chances, mechanically considered, are altogether in favor of the former reaching the depressed utero-tubal orifice instead of the elevated one, and of falling into the Fallopian tube itself, as into a deep well, to meet, at some point in their descent (perhaps in the fimbriated extremity of the tube or upon the surface of the corresponding ovary), an ascending or stationary ovum or ova ready in some one of these localities for the impress of fructification, or conception, and gestation. To these pathologico-physiological conditions of the uterus and its annexa, with the physical phenomena of abnormity regarding the performance of their functions pointed out, may we not reasonably ascribe the occurrence of ectopic gestation, rather than to the length of time of widowhood after fruitfulness, the latter itself presupposing the sequelæ of retro-lateroversion, the first link in the chain of morbid results?

What the force is, inherent in the two essential elements to conception, to insure their movements independently of natural laws and to impart the spark of life when their contact is effected in situations other than the uterine cavity, I do not pretend to know. This remains for the physiologist to explain. But, as proof of the possibility of the spermatozoa, in their migrations in the vagina and uterus, surmounting seemingly the

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gravest obstacles in reaching their usual destination in the latter organ, it is only necessary to refer to the well-attested instances on record of impregnation taking place without rupture of the hymen, among which are the notable examples recently cited by Professor Karl Braun. I have myself seen extraordinary instances of their power to accomplish their work of impregnation in the face of the greatest obstacles. In one case in my practice, which I now recall, there was a continuous flow of urine from the os uteri, arising from a vesico-utero-cervical fistula situated high up. Here they stemmed the opposing current of urine, so to speak, and reached their destination in the cavity of the uterus, with the result of conception, gestation, and safe delivery of a child. In another case which I saw with Sir Spencer Wells in Heidelberg, in the autumn of 1874, in the practice of the late Professor Gustav Simon, a vesico-vaginal fistula, complicated with stenosis of the vagina, had been operated upon by this eminent surgeon for incontinence of urine, a year or two before, by shutting up the mouth of the vagina (kolpokleisis) about half an inch behind the meatus urinarius. The operation was successful, except that an orifice of the size of a cambric needle was left, and, strange as it may seem, the spermatozoa entered through this minute fistulous tract, traversed the vagina, though stenosed and acting as the receptacle of the urine from the bladder, and finally made their entrance through the os uteri into the cavity of the organ. The result was conception and gestation; but a sad termination, as might well be imagined, attended the labor. In both of these cases, there was marked retroversion of the uterus. This digression may be thought irrelevant, but the facts presented are interesting, I think, in connection with my subject, as showing some of the possibilities of normal pregnancy under circumstances seemingly but little less difficult of explanation than those overhanging the causation of extra-uterine gestation.

I shall now present the histories in detail of my two cases of extra-uterine pregnancy, with their treatment and results.

CASE I.—*Right Tubal Pregnancy, end of the Twelfth Week; Rupture of Cyst; Profuse Hæmorrhage; Laparotomy on the*

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Thirteenth Day; Death.—This case I first saw, August 16, 1884, in consultation with Dr. R. Burns, of Honesdale, Pennsylvania, from whose very full report I am permitted to present the following points regarding the history and treatment:

Mrs. G., of Honesdale, aged thirty, says that she first menstruated at the age of thirteen, married at nineteen, miscarried at twenty-four, and was delivered of a full-term child at twenty-seven. The labor was difficult and instruments were used, but her health was afterward good. She married the second time, at twenty-nine, in October, 1883.

On May 9, 1884, menstruation, which had been regular and normal during her married life, except when she was pregnant, appeared for the last time, and continued four or five days as usual. On June 6th it appeared for one day only, and on July 4th it failed entirely. She now had slight nausea, and after a week or two she began to have colicky pains in the right iliac region, with a slight sanguinolent discharge. On July 23d, her pains being more extended over the lower part of the abdomen than usual, she discharged from the vagina a membranous substance about one third the size of the hand. A digital examination by Dr. Burns showed the uterus to be enlarged and tender, with a patulous os, and, by conjoined manipulation, considerable pain was caused in the right iliac region. On August 3d, the patient walked to church and back, about a mile altogether, and afterward suffered from severe pain in the back and right side. A hypodermic injection of morphine was necessary to afford relief. After this, colicky pains, attended by more or less nausea and vomiting, recurred every few days until Saturday night, August 9th, when they became so violent as to require several successive hypodermic injections of morphine before they could be relieved. Next morning the patient was much prostrated. She looked pale and suffered from nausea and vomiting, with a feeble pulse and vesical tenesmus. A digital examination then made showed the uterus to be crowded forward and upward behind the pubes, and Douglas's pouch filled with a soft, doughy mass protruding into the vagina, extending upward into the right iliac region, and pressing the uterus to the left side. The uterus was enlarged, being about four inches long, while its fundus could be easily felt two or three inches above the brim of the pelvis. When pressure was applied,

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great pain was complained of across the entire lower part of the abdomen and in the vagina. There was a constant bloody discharge from the latter. The diagnosis naturally was that of pelvic hæmatocele arising from bleeding vessels probably situated in the right broad ligament.

The patient was kept quiet with opiate enemata and was given liquid food when the stomach would tolerate it. Progress was satisfactory for two days, there being no apparent increase in the size of the pelvic mass. On the third day, August 12th, the patient was seized with the same violent pains as at first, for which a hypodermic injection of morphine, and afterward chloroform by inhalation, were used before relief was obtained. After this attack, there was a perceptible increase in the size of the supposed hæmatocele, as well as an augmentation of the prostration, nausea, and vomiting, with a more feeble pulse, although there was little or no elevation of temperature. Retention of urine now occurred, requiring the use of the catheter. On August 14th, there was a similar attack, with an aggravation of all the symptoms, and the same treatment was repeated.

On August 16th, two days later, in response to a telegram, I first met Dr. Burns in consultation in the case. At my examination, I found the ordinary signs of pregnancy present, including the cessation of regular menstruation for nearly twelve weeks, deepened areolæ, and increased prominence of the surrounding papillæ. These, associated with the foregoing history, all pointed, as I believed, to tubal pregnancy and to rupture of the tube-cyst, the hæmorrhage having produced the doughy mass in Douglas's pouch. I stated my views to Dr. Burns, and said that, had I seen the patient soon after the rupture of the cyst, I should have recommended immediate laparotomy in order to clear the pelvic and abdominal cavities of blood and secure the bleeding vessels, as sanctioned by the highest authorities; but that, as seven days had elapsed, and as the favorable condition of the patient, shown by an improving pulse of 90 without elevation of temperature, warranted the hope of an ultimate recovery without an operation, I should advise waiting for further developments. The doctor coincided with me fully in the latter view, and with this understanding I returned home.

On Tuesday evening, August 19th, Dr. Burns apprised me by

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telegraph of the failing condition of the patient and requested me to come prepared to operate. When I arrived at Honesdale, the next afternoon, I found the symptoms very markedly changed for the worse. The most pronounced of these were persistent and agonizing nausea and vomiting, with a small, feeble pulse of 110, which indicated further loss of blood; and this unfavorable change had been going on for about forty-eight hours. On examination, I discovered that, while there had been no perceptible increase in the mass of blood behind the uterus during my absence, the evidences of its extension in the right iliac and hypogastric regions were manifest. Here I was able to note with precision the increased size, and to map out through the abdominal walls a valuable diagnostic feature which I could not then explain. This was an apparently round body of about one third the size of the fist. It stood on a level with the fundus of the uterus and was quite immovable. Around it I could detect a peculiar condition somewhat similar to that of emphysematous pulmonic tissue when compressed between the fingers.

The only thing now to be done, in my opinion, was to open the abdomen and secure the bleeding vessels, and, accordingly, at three o'clock in the afternoon of August 21, 1884, the patient being under the influence of ether, the operation was begun with all the usual antiseptic precautions. There were present, Drs. Burns, Reed, Niles, and O'Connell, of Honesdale, and my assistant, Dr. R. B. Talbot, of New York. On making the usual incision between the umbilicus and pubes and opening the abdomen, there was a gush of a pint or more of bloody serum. After this was over and the peritoneal cavity exposed, clots of blood were to be seen among the intestines in every direction. There were no plastic exudations or other evidences of peritonitis. On examination, I now found the hard, rounded, immovable body, previously felt through the abdominal wall, to be the right Fallopian tube, greatly distended and looking like a large sausage doubled upon itself. The corresponding ovary, which could not then be felt, was fixed deeply in the pelvis, and to it the upper part of the fimbriated extremity of the tube seemed to be adherent, this accounting for its peculiar form. So tense and resisting was this distended portion of the tube, that no movement of it in any direction could be made during my search for bleeding vessels. Next, I passed my hand into

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Douglas's pouch, expecting to find there the large blood-clot diagnosticated from the vagina; but in this I was mistaken, the clot here being felt in front through an intervening membrane. I then again turned my attention to the distended Fallopian tube, this time passing my index-finger below and under the concave side of it through what seemed to be an open space. Here, at a point near the middle of the tube, the finger entered a rent through which there was a direct communication with the peritoneal cavity and with the *cul-de-sac* below containing the blood-clot, but no fœtus was discovered.

From this point I now directed all of my fingers and then my whole hand into the *cul-de-sac*, where I found the blood-clot for which I had vainly searched in Douglas's pouch. I scooped out handful after handful of dark clotted blood, twenty ounces or more, until I finally reached the bottom of this abnormal sac. The boundaries of this were the detached peritonæum behind, and the uterus, with the upper part of the posterior wall of the vagina, in front, the usual situation of a pelvic hæmatocele.

Having thus finished this step of the procedure, I, for the third time, directed my attention to the enlarged Fallopian tube, with the intention of removing it, and in that way controlling the hæmorrhage which was the result of the rent. The tube was now found to be quite movable, and I succeeded without difficulty in applying a ligature around the broad ligament between the distended portion of the tube and the uterus, half an inch from the latter. This being done, the structures were divided on the distal side of the ligature. Another ligature was then thrown around the structures outside the distended portion of the tube as near as possible to its fimbriated extremity. Here the division of the parts was made on the proximal side of the ligature, including the ruptured portion of the tube. This completed the exsection of the injured and distended portion of the tube and afforded complete control of all the bleeding vessels.

The abdominal cavity and the emptied *cul-de-sac* described were thoroughly cleansed, and a drainage-tube was placed in the latter. The abdominal incision was closed in the usual way, and antiseptic dressings were used. The operation lasted one hour, and the patient received during the time one ounce of brandy hypodermically. She came from the influence of the ether fairly

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well, considering the circumstances, and her general condition was thought to be hopeful for several hours; but her pulse and temperature soon began to go up, the former beating from 140 to 150 in the minute. In addition to this, her almost incessant nausea and vomiting, from which she had suffered so severely before the operation, returned, so that we had scarcely any hope of a favorable issue almost from the beginning of the after-treatment. Nevertheless, nutritive and stimulating enemata, with quinine and opium, were perseveringly used, and everything possible was done to quiet the stomach; but it was all to no purpose. Her condition gradually grew worse, and she died thirty-three hours after the operation.

I have in this jar the distended portion of the Fallopian tube, showing the original bed of the fœtus, and am indebted to Dr. H. C. Coe, Pathologist of the Woman's Hospital, for an examination of the specimen and the following report. He describes it as follows:

"Length of specimen, 9 ctm.; of which 6 ctm. belong to the tube, and 3 ctm. to the portion of the blood-clot, which projects beyond the torn end of the tube. Weight, 80 grammes.

"The specimen has a regular sausage shape, both ends being smoothly rounded off. Two portions may be distinguished; one a blood-clot, being firm, non-elastic, and without any semblance of fibrous structure, and the other, evidently membranous in character.

"The dilated tube contracts toward its proximal end, where there is a small portion of the original canal (about 1½ ctm. long) which admits a fine probe for a short distance. On making a section through the entire mass (along what was doubtless its upper surface), the following appearances are presented:

1. "The tube itself expands suddenly 1½ ctm. beyond its proximal end, the walls being greatly thinned, and the original character of its lining lost. It is filled with a blood-clot, which is continuous with the mass which protrudes from its torn distal end. The clot has contracted so that it is not everywhere in close contact with the sides of the tube.

2. "At the proximal end of the tube, there is a sort of parti-

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tion, apparently formed by a fold in the tube. This would have acted as a barrier to the passage of blood inward toward the uterus; hence the clot is abruptly rounded off at this spot."

I have said in the description of the operation that no fœtus was discovered. This is liable very often to happen on account of its escape into the peritoneal cavity or its becoming disintegrated and lost in the mass of clotted blood, which in this case amounted to more than a pint. Mr. Tait had the same experience in nearly all of his cases. The clot found in the distended tube, constituting a true hæmatosalpinx, came from the bleeding vessels of the ruptured point in the cyst after the escape of the fœtus. The partition formed by the fold near the uterine end of the tube was the result, no doubt, of nature's provision for the bed and protection of the impregnated ovum.

The loop of silver wire on the under side of the specimen indicates the proximal angle of the rupture of the cyst.

CASE II.—*Abdominal Pregnancy; Death of the Fœtus at about the Sixth Month; Normal Pregnancy about Three Years and Two Months afterward; Death of the Child in the Eighth Month; Delivery with Forceps; Remains of the Fœtus in the Abdomen, removed through an Opening in the Posterior Wall of the Vagina at the Same Time; Recovery of the Patient.*—I was requested by Dr. John Burke, of this city, to see this case in consultation, September 18, 1884, and he permits me to report it as follows:

Mrs. K., aged thirty-eight, who had been delivered of six living children without difficulty or injury to herself, became the subject of abdominal pregnancy after a regular menstrual period which terminated January 24, 1881. She stated that the flow had always appeared three or four days in advance of the time, but that its duration was natural. On March 14th, seven weeks from the cessation of her last period, she was awakened out of a sound sleep about midnight by a violent pain across the lower part of the abdomen, soon followed by severe nausea and vomiting. She did not remember on which side the pain was greater. A physician in the neighborhood was called in, who administered a hypo-

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dermic injection of morphine, which gave prompt relief. For two or three days, there was tenderness of the abdomen, attended by a slight bloody discharge from the vagina. After this, the same physician made a vaginal examination and discovered, as he thought, retroversion of the uterus, for which he introduced a pessary. The instrument, however, was worn only a few days, so much pain and discomfort being produced by it that it became necessary to remove it. This was done March 28th by Dr. Burke, the family physician, who was now called in for the first time, and who was obliged to give a hypodermic injection of morphine for the relief of pain. This occurred about nine weeks after the date of the last menstruation in January. The bloody vaginal discharge still continued, and an examination revealed the existence of a large and rather elastic mass, painful under pressure and situated to the right of the uterus. There was also slight enlargement of the latter, and the organ was pressed to the left side. After a few days the abdominal pains in the right iliac region disappeared, together with the bloody discharge from the vagina. The patient had no knowledge of a discharge of anything like a decidual membrane, nor did she refer to symptoms indicating the probability of pregnancy. Dr. Burke's diagnosis was pelvic hæmatocele.

In the latter part of June, 1881, the patient went to the seaside, where she rapidly improved in health and strength. In August, about seven months after her last menstrual period, she noticed a slight "show," which she regarded as a re-establishment of the function. Her size at the time, she thought, was that of a woman at the fifth or sixth month of pregnancy.

In September she returned to the city. Dr. Burke then made an examination, and discovered, low down in the abdomen, a tumor, having, as felt through the vaginal wall, all the characteristics of a fœtal head. Its size was that of the head of a child of five or six months' growth, and it presented behind the uterus. The case was seen in consultation a few days later by an eminent gynæcologist of this city, who declared the existence of abdominal pregnancy.

Soon after this, October 6th, menstruation came on naturally, and the patient felt perfectly well, with the exception of an occasional attack of neuralgia in the right side of the face. Indeed,

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so well was she at this time that she did not wish any further notice taken of her case, although the enlargement of the lower part of the abdomen still continued.

In the autumn and early winter of 1883, nearly three years after this pregnancy, her general health, in the intervals between her neuralgic attacks which had continued up to this time, was better than ever before. The enlargement of the abdomen seemed to her by this time to be greatly reduced, and its situation was much lower.

In the last week of January, 1884, her menstruation appeared as usual, lasting four days; but it did not return in February, March, or April. At this time, the facial neuralgia became more frequent and severe, and the pain soon extended to the teeth, and thence to the whole side of the body as far down as the toes. A dentist was consulted, who extracted several teeth, including some that were sound, but with the result of producing little abatement of the suffering. Owing to the unpleasant effects of morphine upon the patient, Dr. Burke put her on the use of Duquesnel's aconitine, the ninetieth of a grain three times a day, which was followed very soon by marked diminution in the severity of the pain.

In this way matters went on a few months longer, when the patient's attention was directed for the first time to an increase in her abdominal enlargement; but, feeling a repugnance to having an examination made as to the cause of the change, she decided not to ask medical advice.

It was not until September, more than seven months after the last appearance of the catamenia, that Dr. Burke was consulted. He, of course, insisted upon an examination, and the result was that he found in the abdomen a somewhat solid and rolling body, with an unusually marked degree of prominence anteriorly. Having three years before closely watched the case for months as one of abdominal pregnancy, he naturally concluded that the present enlargement of the abdomen might be attributed to the products of that conception.

On September 18, 1884, several days after his examination, he requested me to see the case in consultation. The former abdominal pregnancy being now overshadowed by the actual existence of a new growth, my attention was directed specially to this.

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From the general good health of the patient and the presence of most of the rational and physical signs of pregnancy, as well as from the evidence afforded by palpation, I was at once led to eliminate the existence of uterine and ovarian disease and to decide that the enlargement was probably due to the presence of a fœtus *in utero*. I even thought I heard the pulsations of the fœtal heart; but in this I was mistaken, as the result proved. Further examination *per vaginam*, however, disclosed the fact that the patient was actually in labor.

Two peculiarities in the presentation of the child attracted my attention: 1. The prominence of the head felt through the expanded anterior segment of the cervix uteri. 2. The difficulty in reaching the os uteri with the finger. Only the anterior margin of this could be touched, and this condition of affairs I attributed to the forward inclination of the body of the uterus, in consequence of the presence of the remains of the abdominal fœtus.

After this, Dr. Burke, with his friend, Dr. McSweeny, conducted the labor and delivered the child with forceps after eight or ten hours. The child proved to be of about seven and a half months' growth and had evidently been dead for several days. Immediately after the completion of labor, an uneven and projecting mass presented in Douglas's pouch, which was recognized through the vaginal wall as the remains of a fœtus encysted in this locality. Dr. McSweeny, with the sanction and approval of Dr. Burke, made a longitudinal incision just below the cervix uteri into the cyst, and with a pair of forceps removed the several portions of it. The patient recovered without an untoward symptom, and when I saw her with Dr. Burke, some three weeks ago, she was the picture of health, having even lost her facial neuralgia. An examination showed the uterus to be but slightly enlarged and anteverted. Only the line of cicatrization in the posterior *cul-de-sac* remained to indicate where the incision had been made for the removal of the abdominal fœtus.

Dr. Burke's reasons for removing the encysted fœtus, as was done, was that it had presented at the most favorable point possible for an operation, and that he feared the future health, and probably the life, of the patient might be jeopardized by a longer continuance of its remains in the abdomen.

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I present here the products of the abdominal pregnancy, preserved by Dr. Burke; and I have also in alcohol the intra-uterine product, a well-formed child of seven and a half or eight months' growth, which possesses no point of interest other than the fact of its conception, development, and delivery during the presence of the former fœtus in the abdomen.

The first specimen, consisting of wet and dry preparations, is interesting in at least three particulars: 1. In having sojourned encysted in the abdomen from July, 1881 (when death took place at six months), to September 18, 1884, about three years and two months, and in having been removed, through an incision made into the cyst through the posterior wall of the vagina, a few minutes after the extraction of the normal fœtus with forceps. 2. From the fact that the soft parts had been almost entirely removed by absorption, there remaining scarcely anything save the bones, tendons, dura mater, and some portions of the skin. 3. In having caused the mother, prior to and during her subsequent pregnancy, so little trouble and inconvenience, the general health remaining good during the time indicated, with the exception of the paroxysms of neuralgia mentioned. The fingers and toes and the features of the face are easily distinguishable in the wet preparation.

The points brought out in the preceding pages justify, I think, the following conclusions:

1. That retroversion and retro-lateroversions of the uterus, and the consequent changes in the relationship of its appendages, contribute largely toward explaining the causation of extra-uterine pregnancy.

2. That extra-uterine pregnancy probably has its seat originally in one or the other of the Fallopian tubes, and that the abdominal varieties of it occur afterward, either from rupture of the tube (Tait) or partial or complete escape of the impregnated ovum from its fimbriated extremity.

3. That, after completing the diagnosis of tubal pregnancy between the seventh and fourteenth weeks, it is of urgent importance in all cases to destroy the life of the fœtus, without delay, by electricity, which is the surest and safest method at

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our command, in order to guard against the immediate dangers of rupture of the cyst, now liable to take place at any moment.

4. That the practitioner, if he do not himself feel competent to meet the threatened danger of rupture of the cyst by prompt surgical interference, should at once summon to his aid a surgeon prepared to carry out his wishes at a moment's notice.

5. That the surgeon, when rupture of the cyst occurs, as indicated by the usual symptoms of shock and loss of blood, should open the abdomen and secure the bleeding vessels without delay, success in all cases depending on the promptness and thoroughness of this procedure.

6. That the differentiation of the particular variety of ectopic gestation existing is of no consequence at this early stage, the treatment before and after the rupture of the cyst being the same in all cases.

7. That, when abdominal pregnancy is diagnosticated at a later period of gestation, whether seated partially in the fimbriated extremity of a Fallopian tube or entirely within the peritoneal cavity, electricity should still be promptly employed, on the assumption that the earlier the life of the fœtus is destroyed, the less grave will be the remote dangers arising from disintegration, absorption, suppuration, ulceration, and the use of the knife.

8. That, in all cases of abdominal pregnancy, the fœtus becomes encysted more or less completely, and that, whether its life be destroyed artificially or it die before or at the full term of gestation, it is liable to complicate a subsequent normal pregnancy, by obscuring its diagnosis and seriously interfering with natural labor.

9. That, when normal labor occurs with pre-existing abdominal pregnancy, it should be allowed to progress to its natural termination, the practitioner, of course, assisting the delivery with instruments when demanded; but that, in the event of the dead fœtus presenting in Douglas's pouch, either as an impediment to the normal labor or as a prominent projection from the pouch into the vagina, immediately after the completion of labor, the cyst should be opened and emptied of its contents,

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the delivery of both fœtuses thus being completed at the same operation.

I shall now briefly refer to a third case of extra-uterine pregnancy, which I saw in consultation with Dr. J. F. Chauveau, of New York, November 10, 1884, for the purpose simply of showing how the treatment with electricity was carried out, it being too soon after the occurrence to report the case in full. It occurred in a young woman, aged twenty-five, in the twelfth week of her second pregnancy, and was found to be of the tubal variety, on the left side, the uterus being retroflexed. The diagnosis was clearly made out, the patient being put in the recumbent and knee-face positions, even to the extent of proving with the finger the vacuity of the uterus. As the result of the consultation, it was decided to destroy the life of the fœtus with as little delay as possible. Dr. A. D. Rockwell was called in to apply the electricity, November 13, the form preferred by him being the interrupted galvanic current. The negative electrode was applied *per vaginam* to the pelvic mass to the left of the uterus, and the positive, over the enlargement in the left iliac region, at its most painful point, the current being thus established through the structures. A series of twelve cells, gradually increased to fifteen, was employed, and the interruptions were about one hundred per minute. The *séance* lasted five minutes, with momentary intervals of rest. The patient bore the treatment well, and there was little or no pain. Four applications were made, from November 13 to 17, the first three on successive days, and the fourth, after an interval of one day.

Dr. Rockwell's opinion was that one application, as above described, was sufficient to destroy the life of the fœtus; but, as there was no way of determining this fact positively, he thought, in order to be sure, the patient should be subjected to at least four *séances*.

Note, December 9, 1884.—With this the treatment was concluded, and the patient was believed to be protected against the dangers of rupture of the cyst; but, about sixty hours after the last *séance*, she was seized with another violent paroxysm of pain in the same region as before, which soon extended to the

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entire lower part of the abdomen and even to the corresponding thigh. I then saw the patient in consultation with Dr. Chauveau a second time, and, from the great tenderness still felt in the parts, we concluded that the treatment had not effected its object. Dr. Rockwell was accordingly requested to see the case again, which he did, November 20. He then made a fifth application of galvanism, with the same number of cells and in the same way as before described. The result so far has been entirely satisfactory.

I saw the patient with the family physician this afternoon and made an examination. She had just passed her menstrual period, menstruation having before been absent for nearly four months. It is now twenty days since the last severe paroxysm of pain, and she feels quite well, aside from weakness resulting from confinement to bed. The uterus is almost natural in size and is quite movable; but it is still retroflexed, with a well-defined enlargement above and to the left side of it. The enlargement seems to be of about the size of a Sicily orange. It is much more movable and very much less painful under conjoined manipulation than it was at my last examination. From these circumstances and conditions, therefore, I think it may be clearly inferred that the life of the fœtus was destroyed at the fifth *séance* with the galvanic current, and that no further trouble from its growth need be apprehended.

DISCUSSION.

Dr. F. W. Ross, of Chemung County.—I have seen a case quite similar to the first one reported by Dr. Bozeman. In this case, rupture took place between the second and third months, when a diagnosis was made of extra-uterine pregnancy. The abdomen was opened about four months after the rupture, by Drs. Squire, Dr. Price, Drs. Wey, and myself. We found a firm, fibrinous band, or partition, across the brim of the pelvis, which

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separated the pelvic from the abdominal cavity. The fœtus was evidently encysted. The abdominal wound was closed, and it united in a few days, with no bad symptoms. The patient lived a little over four months after the operation, and then died of pyæmia and exhaustion. On post-mortem examination, we discovered a condition very much the same as that described by Dr. Bozeman in his first case. We did not find the fœtus, which had evidently been disorganized. The left ovary was prolapsed and lay directly behind the uterus, and there was a dilatation of the Fallopian tube on the right side, evidently the site of the rupture. Pus had welled up through an opening in the partition between the pelvis and the abdomen, and was found in the peritoneal cavity. The uterus and all the tissues below the septum were pigmented, so as to be almost black. There was a small perforation into the vagina from Douglas's pouch. The patient died about nine months after rupture of the sac. There had been signs of pregnancy, such as cessation of menstruation, etc.

Dr. Robert Newman, of New York County.—Judging from the paper just read, we should infer that tubal pregnancy is not so rare an occurrence as might have been supposed. Dr. Bozeman's case is a remarkable one, but it is not unique. About twelve or fifteen years ago, Dr. Koehler, of this city, presented to the Pathological Society the skeleton of a fœtus at term which had a history almost precisely like that given by Dr. Bozeman. The bones were delivered through an opening in the rectum, and the woman made a complete recovery. Another similar case, the particulars of which I can not now recall, was related by one of my friends. I wish to thank Dr. Bozeman for the tribute paid to the late Dr. Rogers. It is undoubtedly true that treatment by electricity in accurately diagnosticated cases has given the greatest amount of satisfaction. The question arises in my mind as to the manner in which the fœtus disappears after it has been destroyed by electricity; whether by electrolysis or by simple absorption. It seems to me that absorption probably takes place, possibly aided somewhat by electricity.

Dr. Bozeman.—I regard electricity as very valuable in the treatment of tubal pregnancy. With reference to its *modus operandi*, I think that electricity kills the fœtus, and that nature disposes of the body. I have myself, however, had very little ex-

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perience with electricity in these cases. One case has come under my observation very recently which I have not had time to incorporate in my paper. The patient was a young woman who had been taken with symptoms of abortion at the third month. I saw the case in consultation with Dr. Chauveau. The day after the development of symptoms of abortion, I found the temperature 104° Fahr., and the pulse 120. Dr. Chauveau was of the opinion that the fœtus was dead, and he thought that delivery should be effected. I dilated the cervix with a laminaria tent and found the uterus empty. After further examination, the patient being under the influence of ether, I was enabled to clearly make out tubal pregnancy. There were fullness and hardness in the right iliac region, with great tenderness. Believing that rupture of the tube would soon take place, I suggested the use of electricity. This was applied by Dr. Rockwell, of New York, on Saturday last, and was repeated on the three succeeding days, the duration of each application being ten minutes. The patient is now doing remarkably well, although there is still some bloody discharge from the vagina, which, under the microscope, shows that the particles thrown off come from a fœtus, proving beyond a doubt the correctness of the diagnosis of tubal pregnancy.

In reply to a question by Dr. Moore, Dr. Bozeman said that the interrupted galvanic current from a battery of fourteen cells was employed, and that one electrode was passed up against one side of the body of the uterus, the positive pole being placed over the pubes. The current was continued for ten minutes. It was supposed, when the symptoms disappeared, that the fœtus was killed.

Dr. E. D. Ferguson inquired whether it was not supposed that the first or second application killed the fœtus, the remainning applications being made in order to make sure of that result.

Dr. Bozeman replied in the affirmative.

Dr. E. R. Squibb, of Kings County, remarked that there was a specimen in the museum of the Jefferson Medical College, consisting of a fœtus removed from the dead body of a negress, which he believed had been carried for more than twenty years. The cyst when removed was complete.

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A CASE OF OVARIAN CYSTOMA, WITH OPERATION; FATTY DEGENERATION OF THE HEART.

By T. M. Lloyd, M. D., of Kings County.

Read by Title, November 19, 1884.

Case.—A. M., aged forty-five; domestic; single; born in Ireland; has lived in the United States thirteen years; was admitted to St. Peter's Hospital, November 9, 1883, for acne rosacea which was much benefited by treatment. Early in December, she began to complain of pain in the right iliac region and noticed that her abdomen was increasing in size. For many years her abdomen had been prominent, but her mistress, with whom she had lived eight years, had noticed it more during the past three years. She was in good flesh when admitted. Menstruation had been always attended with pain in the pelvic region, especially during the past thirteen years, but it was regular until last July, when an interval of six weeks occurred, followed by a thinner and lighter flow than usual. Since then, it has been normal in recurrence and quantity.

She came under my care, January 1, 1884. The abdomen was then quite large. Percussion-dullness over the right side extended from the base of the chest to the pelvis, and from the flank to the left side, three inches beyond the umbilicus, encroaching still farther upon the left iliac region. Changes in posture produced but little variation in the outlines of percussion-dullness. In the sitting posture, the tumor could be moved to some extent from side to side. Pulsations of the aorta were transmitted to the hand when pressed upon the abdomen. On examination *per vaginam*, the uterus was found to be movable and anterior to the tumor.

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The patient had been in bed for some time on account of œdema of the lower extremities; urine deficient in quantity, specific gravity low, no albumen, urates in excess; radial pulse small, soft, and compressible on both sides, but much smaller on the left than on the right side; cardiac pulsations deficient in force; the first sound did not seem normal as heard over the base of the heart, but no positive murmur present; percussion evidence negative; respiratory signs normal; liver-dullness normal in extent.

January 19th.—Complains much of pain in left lower limb, markedly along the anterior crural nerve; much tenderness on pressure in the inguinal region; efforts at motion attended with pain; some œdema; kept in bed.

22d.—Daily average of urine has been less than a pint for a week past; circumference of abdomen, at level of umbilicus, forty-six inches; aspirated to-day, and fifteen pints of liquid slowly withdrawn, sp. gr., 1·018, thin, viscid, greenish, and not spontaneously coagulable (sac not emptied). To the left and below the umbilicus, a tense tumor, three or four inches in diameter, was found after aspiration, which was diagnosticated to be a part of the original tumor, but the nature of its contents was not determined. During aspiration, when the abdominal walls became relaxed, the transmitted aortic pulsation became very evident to the eye.

Patient much relieved; urine clearer and quantity increased; daily average for a week following, twenty-five ounces. The night following the aspiration, she was sensible of the tumor changing its position when she turned upon her side in bed.

The liquid did not reaccumulate rapidly.

After reaccumulation of liquid, she suffered much pain in the left limb, and it also become œdematous when she was out of bed for any length of time. This obliged her to remain in bed almost constantly.

The appetite became capricious, and the patient was much thinner. The cardiac pulsations were somewhat variable in force and frequency from time to time, but no change in physical signs was noted.

She was kept on tonic treatment, quinine and iron, and given an occasional laxative. The urine varied considerably in quantity, but averaged forty ounces per diem for two weeks preceding the operation. Sp. gr., 1·013 to 1·023; no albumen.

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Operation performed April 16th, with the assistance of Drs. Wunderlich and Thallon, and the hospital internes, several members of the visiting staff being present. Patient had been kept on milk for two days; bowels emptied by oil and enema.

Circumference of abdomen, thirty-six inches.

A median incision was made about four inches long. Two long bands of adhesions to the abdominal wall were found, one extending toward the right, the other toward the left hypochondriac region. A few adhesions were found in either iliac region, but no omental or visceral adhesions. All were broken up by the hand. The tumor was from the right ovary and was composed of one large cyst and a number of smaller cysts. The liquid of the large cyst greatly distended its walls, which were very thin and easily torn, and was of the same character as that obtained by aspiration. The contents of the other cysts varied much in consistence, from a thin liquid to a very thick, gelatinous semi-solid. The cyst-walls were broken down by the hand introduced through the larger cyst, and their contents were evacuated. The pedicle was secured by a cautery-clamp, a modification of Dawson's, as devised by Drs. Skene and Thallon, being used. The cyst was removed by the knife, and the stump was desiccated after the method of Keith. The Staffordshire knot was also applied, and the pedicle was returned to the abdominal cavity. Four other ligatures were applied to adhesions. The cavity was thoroughly cleansed and was left dry, with a Thomas's drainage-tube placed in Douglas's *cul-de-sac*. The wound was closed by silk sutures. Rubber sheeting and sponge were applied to the end of the drainage-tube. Marine lint was put over the wound, and the abdominal walls were supported by adhesive plaster, cotton, and a flannel-binder. Antiseptic precautions were followed except the use of spray.

The ether was carefully administered, under the supervision of Dr. W. H. Martin, with an Allis's inhaler. The respiration and heart-action were several times very feeble, requiring the hypodermic administration of stimulants. The temperature immediately after the operation was 96°. The patient was placed in bed and surrounded with bottles of hot water. The temperature gradually rose to the normal standard; subsequently, taken every three hours, it did not reach 100° till twenty-four hours after operation, and it declined to 99°, ten hours later. The patient was thought to be

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doing well, until a period of severe retching occurred twenty-four hours after the operation, which was controlled by five minims of Magendie's solution hypodermically administered; but the patient did not go to sleep for an hour. A few intermissions of the pulse were noticed at this time. The pulse increased in frequency, not being influenced favorably by stimulants administered *per rectum* and hypodermically. The patient gradually went into a comatose condition, which deepened and continued for the fourteen hours immediately preceding death. Four fluidounces of serum were removed from the drainage-tube during the first twelve hours, tinged with blood, which left a thin layer of corpuscles on standing. The quantity of serum somewhat diminished after this, but it was always pure and sweet.

AUTOPSY.—The borders of the wound were everywhere adherent except at the site of the drainage-tube; and the latter being gently withdrawn, a canal was left where the recent lymph had united the intestinal and uterine walls. A small quantity of normal serum was found in the pelvic cavity. There was but a small quantity of lymph, and but little injection of the intestinal walls. All intra-peritoneal ligatures were hidden by a thin covering of lymph. The small intestine was collapsed for about two thirds of its length; and near its junction with the large intestine it was doubled upon itself like the letter M.

Liver very fatty; kidneys nearly normal in appearance; lungs normal; heart small and thin-walled, containing a pale clot; fatty degeneration was suspected from its appearance, and this was confirmed under the microscope, by competent observers. The sections examined showed marked degeneration of the muscular fibers, the fatty globules being very abundant and the transverse striæ obliterated.

REMARKS.—It is believed that the fatty degeneration of the heart was the determining cause of death; and the enfeebled organ, having borne the shock of the operation falteringly, succumbed to the first unusual demand made upon it. The limited inflammatory involvement of the peritonæum seemed insufficient to cause death, except through some such organic disorder.

So far as the writer knows, this cause of death after ovariot-

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omy has been very infrequent, and the case is deemed worthy of record for this reason. No satisfactory explanation appeared, to account for the collapsed condition of the small intestine.

The pain and œdema of left lower limb led some of the surgeons to suspect that the tumor arose from the left ovary, but these symptoms were probably caused by the more solid part of the tumor, which extended into the left iliac region, making pressure upon the nerves and blood-vessels.

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REPORT OF A CASE OF DISLOCATION OF THE FIRST PHALANX OF THE THUMB FORWARD.

By Frederick W. Putnam, M. D., of Broome County.

Read November 19, 1884.

Upon consultation of such standard authorities and files of leading journals as were accessible, I have been able to find but few cases reported of dislocation of the first phalanx of the thumb forward.

Dr. Hamilton, in the last edition of his work on "Fractures and Dislocations," Philadelphia, 1880, p. 733, reports two cases occurring in his own practice and refers to four others collected by Malgaigne. Reference is also made to other cases seen by Nélaton, Lenoir, Ward, and Lombard. Dr. Holmes, in his "Treatise on Surgery," Philadelphia, 1876, p. 287, refers to four instances of this luxation, collected by Nélaton. Other examples of this accident have doubtless been reported, and it is presumed that cases have occurred which have never been published.

I have the following case of this accident to present:

T. J. C., a boy ten years of age, in the afternoon of May 24, 1884, fell from a swing, striking upon the ground in such a manner as to produce a forward dislocation of the first phalanx of the left thumb. He came to my office immediately, arriving within half an hour after the accident.

The two phalanges were extended upon each other and parallel with the metacarpal bone, the first phalanx being in front of it and in the same plane. He complained of severe pain, yet

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there was only a moderate amount of tumefaction at the point of injury.

I reduced the luxation by grasping the dislocated thumb with my right hand and the patient's left hand with my left hand, making steady extension of the thumb and counter-extension of the hand, and then, suddenly, quite firm and forcible flexion of the thumb. I made a fixed point, as nearly as possible, of the distal end of the metacarpal bone, and used the index-finger of my right hand as a fulcrum in flexing the thumb. The dislocation was thus readily reduced.

The after-treatment consisted of a bandage loosely applied to the hand and a water-dressing to the thumb, the arm being suspended in a sling.

The case progressed very favorably, and all treatment was discontinued at the end of a week, the motions of the joint being unimpaired. A brief report of this case may be found in "The Medical Record," New York, June 21, 1884, vol. xxv, p. 711.

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RUPTURE OF THE UTERUS.—REPORT OF A CASE IN WHICH THE ENTIRE UTERINE CONTENTS AT FULL TERM ESCAPED, UNRUPTURED, INTO THE ABDOMINAL CAVITY.

By Frank W. Ross, M. D., of Chemung County.

Read November 19, 1884.

The following is the report of a case which occurred in the practice of Dr. William Woodward, of Big Flats, Chemung County, N. Y.:

Mrs. ——, aged forty-two, native of the city of Poole, Dorsetshire, England; small in stature; weight, ninety pounds.

She brought a letter from Dr. Philipott, of Poole, stating that "her pelvis was unusually small, and so much contracted by the projection of the sacral prominence as to render the superior strait almost cordiform; that it was impossible for her to give birth to a living child at full term." Dr. Woodward was called to attend her in labor, July 8, 1882, soon after her arrival from England. He was told that she was advanced to the seventh month, which was evidently her condition. On examination, he found the pelvis contracted, leaving only a fissure on the left of the sacral promontory of about two inches in width, and an opening on the right side of about three and a half inches in diameter. The breech was presenting at the larger opening, and with some difficulty he succeeded in bringing down the feet and delivering, the cranial bones yielding to the pressure, being still soft and not yet ossified.

In the summer of 1883, she was again pregnant, the fœtus being expelled without assistance at about the seventh month.

In March, 1884, she announced to Dr. W. that she was again pregnant, about three months advanced, and was advised that

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premature labor must be induced unless she became relieved at an early period by a miscarriage. Two months later, she announced her determination to hazard going to full term, hoping to bear a living child. She was advised not to proceed and was warned of the danger, but to no purpose. Her desire for a living child was so strong that she insisted on attempting to give birth to one if her life paid the forfeit, but agreed to send for aid on the first appearance of labor.

August 20, 1884, between 2 and 3 P. M., Dr. W. was sent for, and found his patient with the countenance pale, lips livid and exsanguine, and the surface of the body bathed in a cold perspiration. She had been taken with labor-pains at about 5 A. M.; and at 10 A. M., the pains were very severe, not like labor-pains, but tearing and constant. She had vomited frequently and flooded profusely. The pain was most excruciating, and she begged for a powder to relieve her suffering. Supposing that it was a case of placenta prævia, an examination was made *per vaginam*, but Dr. W. could reach neither the placenta nor any presenting part of the fœtus. At this time the hæmorrhage was slight; but within ten minutes after his arrival the patient was dead.

At the autopsy, the following condition was found: The fœtus was lying in the peritoneal cavity upon the intestines, invested with the membranes intact, the placenta being still attached to the sac, all having escaped through the uterus and lying free in the abdominal cavity, the rupture having taken place at the placental site. On removing the child, a full-grown male, the fissure, about eight inches in length, could be seen along the anterior portion of the uterus, as can be readily noted by an examination of the specimen here presented. Considerable blood was found in the abdominal cavity, most of the hæmorrhage coming from the torn uterine sinuses at the point of rupture.

This was her tenth pregnancy.

This case is an instructive one; and I present it to the Association, not giving details of ætiology, pathology, or treatment, but simply to draw a few practical inferences which may be of value to some of us in the future and impress on our minds the fact that such accidents occur often when there is no deformity.

This remarkable case is of special value, aside from its rarity,

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it being the second ever recorded (the other by Dr. John Ramsbotham) in which the entire contents of the uterus escaped, unruptured, into the abdominal cavity. It gives the typical symptoms of a ruptured uterus; *viz.*, the sharp, agonizing, tearing pains, a sensation of something giving way, followed by a pain which is constant and unremitting, with the escape of blood through the vagina. The rupture being at the placental portion of the uterus, and large enough to permit the escape of the fœtus with the sac entire, may explain the *modus operandi* of a similar condition which has been observed a number of times, in which the fœtus escapes, at term, with the membranes intact, through the vagina.

This case illustrates the folly and danger of attempting to carry a child to full term in a pelvis which is known to be deformed, and in this instance it gives a sad example, with the terrible results of a fatal and criminal omission on the part of patient and friends, in neglecting to call medical aid; for in this case the woman survived the rupture four or five hours, and it was not until she was dying that aid was summoned. Without doubt, had the physician been called in time, he would have crushed the head and delivered; or, if the rupture had taken place while he was present, he could have easily recognized it, opened the abdomen at once, and delivered by Cæsarean section.

Although a ruptured uterus is a rare condition, it is an accident which may occur in the practice of any one of us, even when we least expect it, at the most inopportune time and place, as in this case, in a little country town, in the practice of a man who has spent over a half-century in the practice of medicine, with a vast number of obstetrical cases, and yet this accident occurs to him but once and at this late day; while in the practice of the youngest of us it may occur at our next case. When the accident does occur, the symptoms as a rule are well marked. In the present advanced condition of abdominal surgery, we should be prepared to open the abdomen at once and deliver, with reasonable hope of success.

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FATTY STOOLS DUE TO ORGANIC DISEASE OF THE PANCREAS.

By Charles S. Allen, M. D., of Rensselaer County.

Read November 19, 1884.

I was called, September 1, 1883, to visit Captain P. P. Staats, seventy-six years of age, and nearly six feet in height. He had, in his earlier days, been very strong and muscular, and was for many years a captain on the Hudson River. He had been complaining occasionally for the past year, and had taken advice and remedies from various physicians. The late Dr. Parmelee, of Greenbush, had treated him for malaria. After examining him thoroughly, I was unable to diagnosticate the disease; but, as every disease, like a child, must be named, I christened it adipose diarrhœa, though his stools were not of a liquid character. My reason for giving it this name was a very peculiar appearance of the alvine discharges. A liquid resembling melted or hot fat separated from the fæcal matter, and, when cold, would congeal like tallow over the surface. It appeared to be from one eighth to one quarter of an inch in thickness, according to the quantity passed; and, when cold, it had a yellowish appearance, resembling the yolk of an egg. At first, before the discharge, he would complain of pain near the umbilicus, attended with borborygmus, and would immediately go to stool. The fæcal matter which accompanied the liquid was partially consistent and formed, of a grayish color, in large quantity, and attended with much flatulence. The odor from the stool was unbearable, compelling the attendants to open the windows to ventilate the apartment. He would have three, four, or more movements of this kind daily. Not only was the fæcal matter formed, but it seemed to be composed of fasciculi or bundles laid together side by side, the pecul-

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far fluid I have mentioned being discharged at the same time, but separate from the other substances. The appetite was variable, no fever, extremities cold, temperature low, pulse irregular, urine variable in quantity and of a dark color, and the muscles soft and flabby. He slept tolerably well, and had no pain, except just before going to stool. Taking all these circumstances together, I ventured to call the disease chylous, or adipose diarrhœa. His wife asked what my opinion was as to his recovery. I said, He is an old man and I can not give you much encouragement, as, from his present condition, his recovery seems very doubtful. I prescribed equal parts of pepsin and pancreatin, gr. v, three or four times per day; also a pill composed of pul. opii, gr. ½; pul. ipecac, gr. ½; camphor-gum, gr. j., one pill at night. Should the pain continue, the pill was to be repeated three times during the day. I also advised rest in bed, and prescribed for food, soft-boiled rice, milk-toast, and tea, forbidding meat, fatty substances, and spirituous liquors. Having continued this treatment for several days, and being convinced that he had less adipose matter in his discharges and less pain before going to stool, I asked my son, Dr. William L. Allen, to visit Mr. S. with me, thinking he might throw some light upon the case. After giving the patient a thorough examination, he came to the conclusion, as the pain was mainly in the right hypogastric region, that the pylorus was implicated in the disease. Tenderness in that region was also manifest, and it was thought that some obstruction at the head of the pancreas must necessarily exist. He advised the continuance of the pepsin and pancreatin as before. The pill was changed to argentum nitrate, gr. ½; pul. opii, gr. ½; pul. ipecac, gr. j; to be given at a dose, three times daily. We both called on the next day. The patient had no pain, stools darker in appearance and fewer in number, urine better color and in usual quantity, the adipose matter less, and in a day or two it disappeared entirely. There still remained the coldness of the hands and of the lower extremities. I therefore gave him 3-gr. doses of quinine sulph. every four hours, and continued the first medicine as before. He had no pain, and expressed a desire for more substantial diet. I therefore directed a piece of broiled beefsteak for his dinner, and prescribed Wyeth & Co.'s elix. calisaya bark, iron, and strychnine three times per day, after eating, and a small wineglass of port-

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wine occasionally. I gave the pill only at night. We continued this treatment for several days. Occasionally, traces of adipose matter could be distinguished in his stools, yet his general appearance was improved, the appetite and digestion were better, and the temperature was more natural. He expressed himself as much better and insisted on getting up and going down to his meals. As this was the season in which fruit ripens, some boys had been engaged to pick the pears from his trees. Observing that the boys were not able to raise a ladder, he went to their aid, against the wishes of Mrs. S., and assisted them. He was so exhausted on his return to the house that I was sent for immediately. I found, on my arrival, the prostration so great that I was obliged to give stimulants. I put him in bed and wrapped him in warm blankets. This treatment revived him. A few days after this occurrence, he went in a propeller to Albany, crossing the river several times. I did not visit him for several days, as he deemed it unnecessary and said he would notify me if he needed my services again. About a week or ten days after, I was sent for hurriedly, at 3 A. M. I found him in a semi-comatose condition. I asked him how he felt. He replied, without noticing me, "Boss." I inquired if he had pain; he replied, "None." He had no movement of bowels and voided no urine since he had retired to bed. Mrs. S. said she had "noticed the day previous that he did not appear as well as usual, and at 2 A. M. had spoken to him. He had answered in monosyllables." I inquired if he had taken food before he retired. Mrs. S. said he had. As they had company at tea, Mrs. S. was obliged to leave the table for a few minutes, and the captain said "he would eat the fried pork-steak if it killed him." I examined his abdomen externally, and there appeared to be no unnatural distention or tenderness and no fullness of the bladder. The skin was warm and natural. Thinking there might be suppression of urine, I introduced the catheter and found about a tablespoonful. Ten hours having now passed since eating the pork-steak, I was at a loss to know whether indigestion had influenced the coma or if it had been induced by uræmic poisoning. Wishing to analyze the urine, I left the patient, promising to call again before going elsewhere, leaving a few general directions, but giving Mrs. S. no hope of his recovery from this attack.

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Early in the morning, accompanied by my son, I visited him again. He introduced the catheter and drew about a gill of urine.

The coma remained the same during the entire day. I informed Mrs. S. that we thought her husband could not recover, and, if she desired a consultation, that I would obtain it. Mrs. S. said she wished counsel. I accordingly telephoned for Dr. Albert Vanderveer, of Albany, who arrived at 4 P. M. He examined the patient thoroughly, by percussion and auscultation, thinking that there might be latent pneumonia. He noted the sputa, which was gray in color. The eye and abdomen were also carefully examined. The Doctor inquired how long since I had given any opium. I replied, About three weeks. In the interval between the morning visit and the arrival of Dr. Vanderveer, my son had analyzed the urine and found one fourth sugar and about one sixth albumen, with earthy phosphates. The urine was afterward examined microscopically by my son, and was found to contain epithelium, hyaline casts, and broken-down blood-corpuscles, which we thought were sufficient evidence of Bright's disease.

Mrs. S. asked Dr. Vanderveer what he thought of the case. He replied that it was very serious. He did not name the disease but wished to hear from the patient in the morning. My son and I called again at 10 P. M., and found the patient gradually sinking, the breathing slow and labored, profound coma, and insensibility to sound and touch. Mrs. S. inquired how long he would last. I replied I did not think he would last until morning. He died at 1.45 A. M. I tried to obtain an autopsy but failed, as Mrs. S. objected and his son in New York city could not be communicated with in time. He died twenty-four hours after his wife noticed a change, when I was last sent for.

Now, gentlemen, this case, which I have related at some length, is before you, and, to my mind, it is a very peculiar one and of great interest. I have never seen a case of the kind in more than thirty-four years' practice. Dr. Vanderveer said to me that he had never in his practice seen such a case. I thought, from what I had read on the subject, that the case was one of adipose diarrhœa. I therefore submit it for your consideration; but, before closing, allow me to quote from two authorities which have come under my notice since the above case

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occurred, which may have some bearing on this subject. In 1832, Dr. Bright, in a paper read before the Medical and Chirurgical Society of London, said he had observed in a patient peculiar discharges of fatty matter which, when cold, encrusted the fæces. This statement applies to the conditions in the case under consideration, but the fatty substance in his case floated about in the form of globules. In the "Journal of the American Medical Association," for July 19, 1884, is an account of a case which more nearly resembles the case I have presented to you. It was reported by Dr. Ziehl, in a paper taken from the "Edinburgh Medical Journal," in which he says that fat was mixed with the fæcal discharges in a case of obstruction to the head of the pancreatic duct, in various forms, either as a yellowish compact mass, or as an oily fluid, or more rarely in form of acicular crystals, united in bundles which can only be discovered with the microscope. The crystals, he says, had been described by Friedreich in two cases only. They were not tyrosin, as had been maintained by some. Tyrosin-crystals are light-brown in color and are not soluble in ether, whereas the other crystals were clear and transparent, and soluble in ether; and he recorded a case where the presence of these crystals helped him to make a diagnosis. The dejections, which were dry and formed and silver-gray in color, contained a large quantity of microscopic, needle-like crystals, which were either isolated or united in bundles, and which, after being dissolved in ether and evaporated, left an abundant deposit of fat. The case now under consideration resembles this in some particulars. The fæces were formed and silvery gray, and the crystals were discernible with the eye. The liquid resembled oil, and, when cold, formed a yellowish coating over the fæces, of about one eighth to one fourth of an inch in thickness and of a very offensive odor.

I have thus given in detail the history of this case. I regret that an autopsy could not have been obtained, as that, I have no doubt, would have revealed carcinoma or some serious organic disease of the pancreas.

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THE HYDROCHLORATE OF COCAINE AS A LOCAL ANÆSTHETIC IN OPHTHALMIC SURGERY.

By Charles Stedman Bull, M. D., of New York County.

Read November 19, 1884.

There has very recently been brought to our knowledge a new local anæsthetic agent, the hydrochlorate of cocaine, which within certain limits has proved of very great value in ophthalmic surgery. Our first knowledge of the effects of the drug on this side of the Atlantic came in a letter from Dr. H. D. Noyes, of New York, to Dr. E. R. Squibb, of Brooklyn, dated Kreuznach, September 19th. An open letter from Dr. Noyes to the "Medical Record," dated Heidelberg, September 19th, was published in the issue of the "Record" of October 11, 1884. In this letter, he describes the effects of the drug upon the cornea and conjunctiva of patients, as demonstrated at the Heidelberg Ophthalmological Congress in September last. It is not the intention of the writer of this paper to discuss either the origin, nature, or physiological properties of the drug, except from a clinical stand-point. Let it suffice to say that cocaine is the alkaloid made from the leaves of Erythroxylon coca, a shrub which grows wild and is extensively cultivated in certain portions of South America. The leaves resemble those of the Chinese tea-plant, and they have been used for many years as a nerve-stimulant by the natives of Peru and Bolivia, especially by those dwelling upon the slopes of the Andes. The alkaloid was first isolated in 1855, but its physiological proper-

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ties were not thoroughly studied until Lossen investigated the subject in 1860 or 1861. The value of its anæsthetic properties was not recognized in ophthalmic therapeutics until the present summer, when Dr. Karl Koller, Assistant Physician in the General Hospital at Vienna, having seen its beneficial anæsthetic effects upon the sensitive mucous membrane of the larynx, applied it to the eye and produced a superficial and transient but complete anæsthesia of the cornea and conjunctiva. He brought it to the notice of Dr. Brettauer, a well-known ophthalmic surgeon of Trieste, who communicated it to the Ophthalmological Congress at Heidelberg. Through the kindness of Dr. E. R. Squibb, of Brooklyn, the writer was furnished, on October 7th, with a small supply of a two-per-cent and a four-per-cent solution of the salt, made from Merck's crystals, and the physiological experiments which form the basis of this paper were made with these preparations. These experiments may be classed under three heads: 1. Experiments as to the anæsthetic effects of the drug on the sensory nerves of the cornea and conjunctiva. 2. Experiments on the pupil. 3. Experiments on the accommodation.

The drug was for the first time employed in this country, as a local anæsthetic on the eye, by the writer, on October 8th, in his office, for the removal of a cinder from the cornea.

1. *The Effects upon the Cornea and Conjunctiva.*—The effects of the drug in producing anæsthesia of the cornea and conjunctiva are complete and positive, although the diminution of sensibility varies in different persons. The writer has used the drug in more than one hundred and fifty cases and has succeeded in producing complete anæsthesia in all but three, while, in these three cases, the sensibility was decidedly diminished. When a two-per-cent solution is used, the diminution of sensibility begins within the first three minutes after the first instillation, and the anæsthesia is always complete within fifteen minutes and usually within ten minutes. It begins to diminish in about twenty minutes and disappears in from thirty to thirty-five minutes. If a second instillation be made, the anæsthesia comes on more rapidly and lasts longer, sometimes

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continuing for more than an hour. When a four-per-cent solution is used, the diminution of sensibility begins sometimes within the first minute, the anæsthesia becomes absolute within ten minutes, and, if a second instillation be employed within two or three minutes after the first instillation, the anæsthesia is complete within five or six minutes, as may be shown by rubbing the point of a probe over the cornea and conjunctiva. The instillation of neither of these solutions produces the slightest pain or discomfort, nor does it leave any lasting effects. There is no change produced in the appearance of the cornea or conjunctiva, nor is there any ophthalmoscopic evidence of an effect produced upon the intra-ocular circulation. The question whether the anæsthesia extend more deeply and affect the deeper tissues of the eye, will be answered when we come to discuss its usefulness in ophthalmic surgery.

2. *The Effects upon the Pupil.*—The mydriatic effect of cocaine appears much more slowly than that of atropine, and it disappears more rapidly. The pupil usually begins to dilate within fifteen minutes after the instillation of a two-per-cent solution, and within eight minutes after the instillation of a four-per-cent solution. It increases slowly in size, and in some cases very slowly. It reaches its maximum in from thirty-five to forty-five minutes and then slowly diminishes, its contraction being much slower than its dilatation. In no case has the writer seen the pupil become as dilated under its use as it does from atropine, even when a four-per-cent solution has been used. In some cases, there was still a trace of dilatation on the day following the experiment. In one case, no dilatation of the pupil was produced after repeated instillations of the stronger solution, although atropine acted promptly on this patient.

3. *The Effects upon the Accommodation.*—The results here are, to the mind of the writer, still unsatisfactory, and they require further careful observation. The range of accommodation is shortened, and the near-point recedes from the eye, even when a two-per-cent solution is used. In the person of the writer, whose refraction is myopic, the shortening of the range of ac-

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commodation was equal to about D. 5, which came on within twenty minutes after one instillation of a four-per-cent solution. In most of the cases in which this effect was noted, the recession of the near-point began within twenty minutes after the instillation, continued to increase during fifteen or twenty minutes, and then almost immediately began to diminish, and, within an hour and a half, the range of accommodation was again normal. The effects of the drug are thus seen to be less marked and more transient on the ciliary muscle than on the iris. The degree to which the accommodation was affected varied very much in different patients. Hence, these observations upon the effects of cocaine on the accommodation need to be carefully repeated on a much larger number of patients before satisfactory conclusions on this head can be reached. In no case was there produced complete paralysis of accommodation.

We now come to the most important point for ophthalmic surgeons; *viz.*, the usefulness of the drug as a local anæsthetic in operations upon the eye. The points to be settled are two: 1. Are the anæsthetic effects of the drug, when dropped upon the cornea and into the conjunctival *cul-de-sac*, entirely superficial, involving only the surfaces of these membranes, or do they extend through the coats of the eyeball, merely requiring more time to produce their effects? 2. If the former be the case, can these effects be made to extend more deeply by injecting a few drops of the solution within the cornea or beneath the conjunctiva? The writer believes that the drug is absorbed, and that osmosis does occur, but very slowly and unsatisfactorily, even when a strong solution is employed and the anæsthetic effect upon the iris and the deeper tissues of the eye is but slightly marked. But the anæsthesia of these highly sensitive membranes may be readily produced, in cases where it is necessary, by instilling a drop or two of the solution into the anterior chamber through the wound; and an operation for squint may be made absolutely painless by injecting a few drops through the conjunctival wound into the sheath of the tendon. The following *résumé* of a number of cases in which the cocaine was instilled, pre-

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liminary to operation, will give a clear idea of the extent to which it may be employed in ophthalmic surgery and of the limits of its usefulness:

I.—The first case in which the writer employed the drug was a bad case of abscess of the cornea, with iritis and hypopyon, occurring in an enfeebled woman, aged fifty-four. Saemisch's operation of splitting the cornea was necessary, and, after two instillations of two drops of a two-per-cent solution, with an interval of ten minutes between them, the conjunctiva was seized with the forceps and the cornea split transversely just below the horizontal meridian, without causing the slightest pain.

II.—A case of kerato-iritis with hypopyon, occurring in a man aged thirty-five. After two instillations of a two-per-cent solution, with an interval of eight minutes between them, the anterior chamber was opened below by a broad paracentesis through the cornea, made with a lance-knife, and the pus was evacuated, without causing the patient any pain.

III.—A case of convergent squint with hypermetropia, occurring in a young girl aged seventeen, in which it was necessary to divide both internal recti muscles simultaneously. Two drops of a two-per-cent solution were instilled into each eye, and, after an interval of five minutes, two drops more were used. After a second interval of five minutes, the conjunctiva was seized over the insertion of the right internal rectus and divided painlessly; but the moment an attempt was made to open the sheath of the tendon, the patient winced and cried out, and expressions of pain continued for some time after the tendon was divided. In the left eye, after the conjunctiva was opened, two drops of the same solution were instilled beneath the conjunctiva, and, five minutes later, two drops more; and within ten minutes the internal rectus muscle of this eye was divided absolutely without pain.

IV.—A case of leucoma corneæ, in a man aged eighteen, where it was necessary to perform an iridectomy for optical purposes. After the usual double instillation of a two-per-cent solution, there was complete anæsthesia of the cornea and conjunctiva, and the preliminary incision was made through the sclero-corneal margin, on the nasal side, without pain. The moment, however, the iris was seized with the forceps, the patient complained of pain and

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continued to do so until after the operation was completed. This showed that the anæsthetic effect of a two-per-cent solution, instilled in the manner described, had not at that time extended to the iris.

V.—A case of simple chronic glaucoma in one eye, with absolute glaucoma and cataract in the other eye, occurring in a woman aged fifty-five. A two-per-cent solution was instilled once into the first eye, and, after five minutes, a second time. In ten minutes after the first instillation, there was complete anæsthesia of the cornea. The preliminary incision was made in the limbus upward with a broad lance-knife. Then two drops of the same solution were dropped through the wound into the anterior chamber, and in ten minutes a broad iridectomy was completed, without the slightest sensation of pain being felt by the patient.

VI.—A case of ordinary senile cataract, occurring in a man aged fifty-six, in whom a preliminary iridectomy with massage of the cornea, known as Förster's operation for maturing cataract, had previously been done. A two-per-cent solution was used in the ordinary manner, with complete anæsthesia of the cornea in ten minutes, and peripheral incision, quadrilateral capsulotomy, and extraction of the cataract were performed with ease and with entire absence of pain.

VII.—A case of senile cataract, occurring in a man aged seventy-four, of excessively nervous temperament and of gouty constitution. In this case, a four-per-cent solution was used, and in twelve minutes the peripheral incision, iridectomy, capsulotomy, and extraction of the cataract were all done painlessly.

VIII.—Another case of cataract, occurring in an old woman aged eighty-two. Here a preliminary iridectomy with massage of the cornea was done within fourteen minutes after the first instillation and within six minutes after the instillation of a four-per-cent solution within the anterior chamber.

IX.—A case of retention-cyst of the ocular conjunctiva, occurring in an elderly woman. The cyst was as large as a Lima-bean and hung down from the upper *cul-de-sac* over the eyeball. A two-per-cent solution was instilled twice, and within twelve minutes the cyst was slit up, its contents were evacuated with the spoon, and its inner surface was cauterized with tincture of iodine, all painlessly.

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X.—A case of mucocele with stricture of the nasal duct of long standing, occurring in a woman aged thirty-four. A four-per-cent solution was instilled through the lachrymal punctum; and in eight minutes the canaliculus was slit, the sac opened, and its contents evacuated. Two drops of a four-per-cent solution were then dropped into the duct through the opening in the lachrymal sac, and in ten minutes the stricture was thoroughly divided with a Stilling's knife, and a large-sized Theobald's probe was introduced, all painlessly.

It may thus be seen that almost all the various operations done upon the eyeball, the inner surface of the eyelids, and on the tear-passages, may be performed painlessly under the anæsthetic influence of cocaine. The only operation on the eyeball in which it may not answer its purpose is that of enucleation; and even in such an operation, excessively painful as it is from the large number of the ciliary nerves involved, it may be possible, by a careful injection of a four-per-cent solution beneath the conjunctiva and within the fibrous capsule of the eyeball, to bring about anæsthesia even of these deeper nerves, and thus make the operation a painless one. Looked at even from the most unsatisfactory stand-point, and without the glamour of a very excusable enthusiasm, the drug is a most valuable addition to the resources of ophthalmic surgeons, and it relieves us, to a marked degree, from the thralldom of ether and chloroform. It may seem strange to the older members of the profession to hear such an expression as "relief from the thralldom of ether and chloroform," as scarcely forty years have elapsed since Morton first employed ether to relieve the pain of any operation. But, to the ophthalmic surgeon, the time necessarily occupied in complete etherization, the enormous engorgement of the ocular blood-vessels produced by the ether, the danger of the vomiting which may occur at any stage of an operation, and the fact that almost any apparatus for producing anæsthesia by inhalation is in the way of the operator upon the eye, are all such serious objections, that any degree of enthusiasm in the interests of a drug which certainly releases us from such a thralldom may

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well be pardoned. In plastic operations about the eyelids, the drug has not been tried; and, owing to its very slight effect in diminishing the sensibility of the skin, it would probably prove of little avail. A four-per-cent solution has proved very useful in the writer's hands, in certain operations upon the membrana tympani and middle ear. Paracentesis of the drum-membrane has been performed three times under its influence, with entire absence of pain. In one case of exuberant granulations springing from the external surface of the drum-membrane and the auditory canal in the immediate vicinity, after one instillation of a four-per-cent solution, these granulations were removed with a sharp scoop without causing any pain.

The action of the drug upon the swollen mucous membrane covering the nasal septum and turbinated bones, in cases of acute coryza, is very marked. The writer has used it in his own person, when suffering an attack of acute naso-pharyngeal catarrh with almost complete occlusion of both nostrils. A probe covered with cotton was dipped into a four-per-cent solution, and the entire surface of the septum and turbinated bones, as far as could be reached anteriorly, was covered with the solution. The same solution was also applied on a brush through the mouth to the posterior nares, with such effect that, in less than ten minutes, both nostrils were entirely free and remained so for about five hours. The swelling then returned, but to a less degree.

DISCUSSION.

DR. ROBERT NEWMAN, of New York County, asked three questions: First. What sort of sensation was produced by the anæsthetic? Second. Could it be used by the atomizer? Third. What was the expense of the drug?

DR. BULL replied that the sensation produced by the drug was at first that of cold, and afterward sensation ceased. The drug

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could be used in the atomizer, but that this method was costly. He employed a four-per-cent solution, costing at the rate of forty cents a grain. Eight drops were sufficient for an operation upon the eye.

Dr. H. E. Mitchell, of Rensselaer County.—I can confirm all that Dr. Bull has said as to the value of hydrochlorate of cocaine as an anæsthetic. I desire, also, to call attention to the value of the drug in allaying pain, not only in the eye, but in the ear and nose. I have always felt that it is desirable to do operations with as little discomfort to patients as possible, and have been in the habit, for the past three years, of using the bromide of ethyl in performing minor operations upon the eye as well as for diagnostic purposes. I have been much pleased with the effects of this drug, but it is probable that the new anæsthetic will prove superior to, and finally supersede it. The effects of the bromide of ethyl are remarkably prompt, complete anæsthesia taking place within from one to two minutes, and disappearing in nearly as short a time. In my own practice, the anæsthetic has been used with perfect safety; but, since hydrochlorate of cocaine has been introduced, I wish to advocate the importance of its use for diagnostic purposes and for the relief of slight ailments in children, in whom it is almost impossible to carry out any plan of treatment so long as extreme sensitiveness of the eye exists.

Dr. E. R. Squibb, of Kings County.—I received a letter from Dr. Noyes bearing about the same date as one published later in the "Medical Record" from the same author; and I immediately sent the letter, with some cocaine hydrochlorate, to Dr. C. S. Bull, who, I believe, was the first physician in this country to test its anæsthetic properties. It is a remarkable fact that coca, from which cocaine is made, is a stimulant, while cocaine is a powerful sedative to the tissues with which it comes in contact.

Dr. Squibb then spoke at some length of the manufacture of cocaine, and said that the price which had been demanded for it by the importer before its anæsthetic properties were known had been about sixteen or seventeen cents a grain; and, as the extracting process was very costly, it was probable the price would not fall below that figure. The four-per-cent solution, which was about the only form in which the drug could be obtained in this country at the present time, was generally sold at from sixty cents

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to one dollar a drachm; but even at that price it was a cheap anæsthetic, inasmuch as only about five drops were used during an operation. From ten to twelve cents' worth of ether was usually consumed in anæsthetizing a man. Dr. Squibb thought the anæsthetic was a valuable one, and that it would not prove to be one of the fashionable novelties destined to go out of use.

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PROTECTING THE PERINÆUM.

By Jacob Hartmann, M. D., of New York County.

Read by Title, November 19, 1884.

It is generally admitted by writers on obstetrics, in connection with the subject of protecting or supporting the perinæum during the second stage of labor, that something should be done to prevent its laceration; and many suggestions, experiments, and trials have been made to that end. We may assume it to be true that the perinæum does not require support in all cases; and I am not far out of the way when I say that, in the vast majority, it is not necessary, and that nature will and does accomplish all that can be desired. Meddlesome interference in all such cases is injurious, and it tends rather to delay than hasten labor. In multiparæ, for example, the perinæum yields readily and seldom offers any serious obstruction, and, with very few exceptions, the expulsion of the head is accomplished without artificial interference. It is only in a certain class of cases, therefore, that artificial protection of the perinæum is requisite, and that class, generally speaking, is among primiparous women. Even among these, however, it is not always called for. As to a laceration occurring during the passage of the shoulders through the vulva, this should never take place if a reasonable amount of care and attention be exercised. If a laceration occur, it is in the effort of expelling the head and during its passage over that commissure. I may say, without apology and with perfect confidence, that, in the great majority of existing lacerations, the damage has not been done by the natural passage of the head over the perinæum, whether supported or

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not, but by the uncalled-for, reckless, and injudicious use of forceps. The cases are rare in which instruments are necessary; in multiparæ, scarcely ever, and in primiparæ, very, very seldom. That the perinæum should remain intact there is no doubt; and that it should be carefully guarded in all cases, to prevent laceration, no one will deny.

Having carefully examined the principal authorities upon the subject and the various methods and practices recommended, I desire briefly to describe my own method, which differs essentially from the different modes of procedure mentioned by obstetric writers.

Position of the Woman.—The woman is placed in the dorsal position, with her right side near the right edge of the bed. The limbs are flexed and abducted, and the feet are firmly planted on the bed. It is not necessary to expose the parturient at any time, and the manipulations should be made under the bedclothes.

Position of the Accoucheur.—The physician takes a standing position, his right side toward the right side of the woman, so that he and the patient face each other. The right hand can be used freely at any moment. He should stand firmly and should assume a position that will lend force to the arm and hand when the time comes to act. The left hand may be held by the patient.

Introduction of the Hand.—The right hand is introduced under the bedclothes, between the abducted limbs of the woman, with the finger-tips directed downward, and the arm semi-flexed. The fingers are disposed around the perinæum, between the anus and the anterior border of that commissure, in the following manner:

The tips of the middle and the ring-finger take their position a little behind the anterior border of the perinæum, and on either side of the anus, while the tip of the index-finger performs duty at the left, and the little finger, at the right posterior portion of the labia majora. The fingers, thus disposed, yield and bend as the circumstances of the case demand, so that the hand becomes hollow, accommodating itself to the head, be-

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hind the bulging perinæum. The thumb is at liberty to do service at the head when required. The fingers being so placed, the index-finger may at any time be introduced between the labia in order to determine the progress of the head. The finger-nails should always be closely trimmed.

Guarding the Perinæum.—When, after examination, it is found that the head approaches the floor of the pelvis and begins to press upon the perinæum, the hand, in the position described, enables the operator, at the beginning of every pain, to note the expulsive force exerted and the progress of the head. If the perinæum become tense, and the head be forced downward and outward, the fingers then press the perinæum inward, backward, and slightly upward. This is done in order to lift the head upward and outward, as well as to flex the head upon the sternum. When the bulging perinæum is not prominent enough to be grasped and to enable the operator to hold it with the fingers in the hollow of the hand, the head not sufficiently advanced, and the perinæum not tense but relaxed, and it is noted that the uterine contractions have ceased, the hand should be removed, and the patient should stop all exertions on her part and wait for the next pain. With the next pain or the pain following, when the pain is strong, the expelling force vigorous, and the perinæum tense and bulging, then all the strength possible should be brought to bear upon the anterior margin of the perinæum, pushing it backward, inward, and slightly upward, so as to make it glide over the head, forehead, and face of the fœtus, the nape of the neck being well under the pubic arch. The fingers, getting well behind some part of the face, help to lift the head out of the vulva by an outward and upward movement. Should, however, the expelling pain stop short before the head is born, although the perinæum may relax, it is best to hold on to the head, through the perinæum, with a firm grip until the next expulsive pain comes on, because this is almost sure to be last. When, however, the final effort comes, the uterine contraction, aided by the auxiliary expulsive power, forcing the head outward, then is the proper time for the accoucheur to exercise all his strength, to bring to bear upon the perinæum a counter

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force equivalent to the expulsive force exercised, and to press the perinæum back with the fingers and hand, retracting it over the head and face.

The Breathing.—In the last efforts, when all the forces at the command of the parturient should be concentrated, with the one sole object in view, and that is to expel a passing body through a canal over an elastic commissure, the breathing should be suspended during the acme of the pain. It is self-evident that, when a certain force, aided by an auxiliary force or forces, produces a given power, acting as a unit in the propulsion and expulsion of a body, the expulsive power is diminished when these forces are divided. The uterus contracts upon the body of the fœtus, aided by the respiratory muscles, the abdominal walls, diaphragm, etc., all acting as a unit in producing this expulsive force. If the respiratory muscles be diverted, either by rapid and short breathing or by crying lustily, there is just so much force lost.

Regulating the Pain.—The pain, or rather the contracting forces, may largely be controlled by the attending physician. To let the woman press, push, or cry, when it is not necessary, is to permit a useless expenditure of force. Therefore, when the hand at the perinæum perceives that the expelling force has ceased, the patient should desist from further effort. The strength of the patient and the expulsive forces can and should be economized; so that, when the last crowning expulsive struggle comes, she may press with all her might, exercising, for the instant, a greater and a more prolonged force, straining every nerve, and, with the aid of the accoucheur at the perinæum, the final act is accomplished.

Résumé.—With a normal pelvis and normal soft parts, presenting no obstruction during the act of parturition except at the perinæum, when the head can enter the superior strait and pass the inferior, the perinæum will invariably yield or can be made to yield. Forceps should never be used, and the perinæum may be preserved in its integrity by proper care. In my own experience, when I have been called for the express purpose of applying instruments in a primipara, I never used them when the

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perinæum presented the only difficulty to be overcome. Some of the important qualities to be exercised by the accoucheur at this time are patience and good judgment, with a thorough knowledge of the anatomical structure and relations of the parts; and the most available, sensitive, and harmless instruments to be used in all such cases, are the hands and fingers. We have seen that the only obstacle in the second stage of labor in the primipara is that elastic structure called the perinæum, sometimes less elastic than at others, when it is called rigid; but, whether more or less elastic, it can, in my belief, always be overcome with proper management. Preserving the perinæum consists, then, in the operation of a counter-force drawing it back over the head and face, while the expulsive forces push the fœtus through the orifice of the vulva; and when the head is once at the perinæum, this seldom requires more than three or four good pains, lasting not much longer than ten or fifteen minutes.

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A CASE OF CONSERVATIVE SURGERY; RESECTION OF THE HEAD OF THE HUMERUS WITH THREE INCHES OF THE SHAFT, FOR COMMINUTED GUNSHOT FRACTURE OF THE HEAD; RESTORATION OF THE SHAFT AND HEAD, WITH A USEFUL ARM.

By R. B. Bontecou, M. D., of Rensselaer County.

Read, and Case exhibited, November 19, 1884.

This gentleman, Mr. D. C. Lewis, now a resident of Nicaragua, happening to be in New York, has kindly consented to have his case presented to the Association; and, being interesting in its results, it having been one of the first resections of the shoulder practiced during the late war, I thought it might be of interest to you.

Mr. Lewis was twenty years old and a private in the Eleventh Massachusetts Volunteers, when wounded at the first battle of Bull Run, July 21, 1861. He was taken prisoner and kept in Richmond for several months, until, when nearly dead from exhausting discharges and depressing prison-influences, he was exchanged and sent to Fortress Monroe, Virginia, and was admitted to the Hygeia General Hospital, January 17, 1862, then under my charge.

When he entered the hospital, he was much emaciated, and the left shoulder was greatly swollen and was perforated with a number of sinuses about the joint and scapula. Early in February, 1862,

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his condition having improved under generous diet, I removed the head and three inches of the shaft of the humerus, by a V-shaped incision, selecting that method on account of the sinuses. Great vascularity and a cheesy condition of the parts rendered it diffi-

PRESENT CONDITION OF THE SHOULDER. (From a photograph.)

cult to secure the blood-vessels. There was also much difficulty encountered in removing the large, irregular mass of bone in which the dead head, in three pieces, was inclosed. Gangrene subsequently attacked the wound, destroying the tissues, which

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proved nearly fatal. In March, 1862, he became able to travel, and the menacing attitude of the rebel iron-clad, the Merrimac, making it advisable to transfer as many of the wounded as possible, he was sent North. A new shaft had at that time replaced the parts of the humerus which had been removed, and, with motion at the shoulder-joint, the limb promised well. Ankylosis, however, took place subsequently; but, notwithstanding this, his arm has been and is still useful, the scapula, as you see, permitting of quite extensive movements. He can put his hand to his head, and, although the deltoid is atrophied and the upper arm is small, the forearm is as well developed and as muscular as the right. The arm is but a trifle shorter than its fellow.

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COMMON SENSE *VERSUS* HYPOTHETICAL MEDICATION.

By JONATHAN KNEELAND, M. D., of Onondaga County.

Read by Title, November 19, 1884.

THE readiness with which thinkers, as well as the masses of men, embrace new doctrines of medicine, and the credulity which leads them to believe in and to swallow pretentious proprietary drugs, are outgrowths of the antiquated error that medicines are curative.

The term *vis medicatrix naturæ*, otherwise known as the *constitutional powers*, the *force of nature*, or the *laws of organic life*, denotes a principle which presides over normal growth and development, together with all the actions taking place in the vital organism in health and the restorative processes when degeneration results from decay or disease. These different names point to the same great truth; namely, that cures are but the renewed normal actions which have been averted or perverted by disease. This statement does not conflict with the assertion that the wise physician may give remedies and thereby aid the recuperative efforts of nature. But wherever the judicious regulation of air, food, and other hygienic conditions is the chief aid in recovery from disease, let us admit their claims and not attribute to the dynamic potency of nonentities, or to potions, pills, and pellets, results which are due to the self-regulating power of nature, established by an all-wise Creator.

The renowned Hunter, in a consultation with a younger physician, advised that all medicines be discontinued; and the patient, who had for many weeks been medicated, was fed on

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new milk only, in doses of a spoonful each hour, when awake, whether retained or rejected. After a few days, larger quantities were given, at longer intervals, and after ten days a little farinaceous food was added.

The patient completely recovered, says the chronicler.

Had this patient swallowed placebos, or minute doses of a hypothetical medicine, the cure would have been attributed to these.

Fifty-two years have passed since John Eberle and Daniel Drake, the two greatest physicians of the West, held a consultation in the sick-room of an invalid who had had Asiatic cholera ten weeks before, who was reduced in weight from 140 to 72 pounds, and who was unable to turn in bed, as the result of chronic diarrhœa. The patient's senses were acute, and his recollection of the scene is, at this distant period, most vivid.

"He needs no more medicine," said Eberle. "I think otherwise," said Drake; "but since the case is so nearly hopeless, and you," addressing Dr. Eberle, "as consulting physician, are responsible, I shall be governed by your views in the treatment." Dr. Eberle then ordered the nurse to give no medicine except a decoction of dewberry-root in milk. This, and only this, was given for food, drink, and medicine, for two days; then, a little panada, consisting of potato-starch and arrow-root prepared with milk, was added. Slow restoration was aided, perhaps, by removing the patient, on his bed, from Cincinnati, Ohio, to central New York, a distance of over nine hundred miles, mostly by water. The patient so far recovered—chiefly by aid of wise hygiene, proper food, and horseback-exercise — that, giving medicine to such as needed it, and taking very little himself, he has practiced medicine over the hills and vales of Onondaga County, N. Y., for forty-four years. I may appeal to a gentleman present, the Honorable Commissioner of Lunacy, Dr. Stephen Smith, to verify the facts stated with regard to this case. I do not, however, desire to be understood to say that medicine was not used in this case to aid nature in obviating diseased conditions resulting from dyspepsia, catarrh, malaria, or accidental injuries.

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Some forty years ago, a case of disease, which baffled the skill of the local physicians in one of the counties of central New York, led to calling in the aid of Dr. S., then the great "medicine-man" of that region. The doctor believed in medicine, and, if the right kind were not at hand, he could improvise it.

He found the patient, a girl of sixteen years, in an open bedchamber, from which the windows had been removed, the season being March and the weather cold. Several strong male attendants relieved one another every few minutes in turning the crank of a fanning-mill, so arranged as to throw a strong current of cold air upon the face of the patient. Dr. S. obtained from the attending physician the history of the case and examined the patient thoroughly. He then arose, called for six pails of water from the coldest well, and ordered all food and medicine discontinued and the wind-mill stopped. "But," said the patient's brother, "she can't breathe when we stop fanning her." "Stop the mill," said Dr. S. He was reluctantly obeyed, and she did stop breathing. The doctor dashed water over her, and she caught her breath, but it stopped. Again and again he dashed it over her. After three pails of water had been used, she caught her breath and held it fast.

My informant, many years afterward, assured me that this patient was then living, and that, no medicine being given, the recovery was rapid.

The case was believed to have been chronic peritonitis.

I shall not tire your patience by giving cases from my own long country-practice, to illustrate how much more may often be done to cure or ameliorate suffering in chronic surgical cases by rational mechanical supports and adjustments than by medicines. New York city has given to the medical profession a man who has proved himself a worker of surgical cures by common-sense external supports, without the help of which, appropriate remedies "to meet the indications of each case" could have done little good. In conclusion, I may cite a case known to you all, in proof of how much can be done, where little can be

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certainly known, to prolong life and add to its comfort by common sense put into practice:

The sympathy, science, and curiosity of men and women, wise or otherwise, were more called forth by the bullet of Guiteau than by any missile ever sped on a fatal errand. Nélaton and electric probes, the antennæ of spiritual and mesmeric seers and feelers, poked and punched in vain; and, while only one man (an old navy surgeon) partly guessed its direction or situation, Bliss, Hamilton, Agnew, and their *confrères* received thousands of letters suggesting remedies, many of them assuring certain cure if they were used. I myself, even, ventured to urge that food be so prepared as to be assimilated without in the least overtaxing the digestive powers, that the least possible medicine be given, and that, as the case lingered on, Mr. Garfield be removed. The preservtion of his life for eighty days was doubtless due, in great part, to the wise cooling of the air, the enforcement of quiet, suitable food, and the avoiding of hurtful medication.

In seeking illustrations of my doctrine—that common sense is a better guide than hypotheses, however plausible, in treating chronic diseases—I have found but few clear and definite examples. Some physicians, as well as most other people, believe that medicines always cure disease, if it be cured at all. As a consequence, when their patient fails, they shift their tactics, call counsel, or, last and most to be deplored, they let him pass into the hands of an empiric or become a vortex for cure-all concoctions. Now, if from either of these last resorts the sufferer should get a remedy amounting to little or nothing but labeled with a high-sounding name, and if, from the curative aid of food, exercise, and renewed hope, he should recover, the credit is lost to the rational means used and is given to the empiric and his potions.

Few sick are ever restored without either aid or hindrance from medicine; and wisely prescribed medicine often has power to accelerate the cure in chronic diseases, but never to cure, unaided by rational hygiene.

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A FEW HINTS ON THE PREVENTION OF INSANITY.

By JOHN P. GRAY, M. D., of Oneida County.

Read November 19, 1884.

To prevent the occurrence of disease in communities is not only a matter of prudence, but a measure authorized and enforced by supreme law. Modern science has suggested medical health-boards, and legislatures have created them in States and Counties. Such boards exist in the State of New York, and they are approved by the people. These boards are authorized to proclaim rules and regulations of hygiene, and are clothed with adequate power to enforce them. Appropriations of money are made to execute the work. This extends over all parts of the State. They exercise inspection and control of roads, streets, buildings, whether public or private—even the houses and premises of residents, as well as factories, workshops, and all places where men or women are congregated. In the case of certain infectious or contagious diseases, they even exercise a controlling power so far as to isolate persons from their families, to remove them to buildings at a distance from their homes, and to provide for their care by medical men under public appointment. The law goes even further, in ordering compulsory vaccination of persons attending the public schools, which is, perhaps, the most extreme measure adopted for the prevention of disease. All these things are authorized and done for the general public health and safety, and all this under the constituted civil authorities of States and

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Counties. All these precautionary measures are at the behest of medical science. It is a great advance made when a government has thus practically extended its protection over its citizens, forcibly, if need be, alike over the rich and poor, so that neither ignorance nor indifference shall be the means of evil to communities, when that evil can be prevented or even measurably controlled.

It is true, with regard to all ordinary diseases, that the individual is left to his own discretion where negligence, indifference, ignorance, or superstition can affect only himself injuriously. But even here he is obliged, under the health-laws, to exercise that measure of care which will secure others against offensiveness or danger.

Insanity is a disease of frequency, and is among the most serious disorders which can afflict individuals or communities. There is no disease, perhaps, which is so largely within the purview of legal enactments. To a greater extent than in any other, the law authorizes the control, treatment, and protection of the victims of this disease. There are elements of danger as well as helplessness in it, which make such legal measures necessary, wise, and humane, both for the individual and for communities. The law not only interferes forcibly to secure to the insane safety against themselves as well as others, but also to secure treatment and to extend guardianship over their property; and the law at every step appeals to medical science and the services of the profession.

More than twelve thousand persons thus under the control and protection of law, now in the hospitals and other institutions in the State of New York, attest the importance of this subject to the medical profession; and, when it is remembered that no one can be placed under control and treatment as insane unless he be so adjudged by medical men, we must see our responsibility and our intimate relations to this form of human affliction. That we recognize its existence as disease, and the necessity of measures of treatment, is well. But an equally, if not more important point, is whether there be anything we can do in the way of prevention; anything efficiently, in this direc-

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tion, to lessen its frequency. To this question I shall direct what little I have to say.

To prevent the occurrence of any disease in any individual is a blessing, and the graver the disease, the greater the blessing. Preventive measures in connection with insanity open a wide field, which begins with the growth, development, and education of the child up to maturity. It takes in the habits of body and mind, the feelings, the passions, the griefs, the troubles, the worries, the toil, the accidents, and the dissipations of life. This is only to say, however, in a general way, that good health, mental culture, the control of the emotions and passions, and the exercise of morality, are safeguards against insanity in any form. The old adage, "A sound mind in a sound body," is true; but the converse is, fortunately, not true—that an unsound body should necessarily produce an unsound mind. But it is universally admitted that insanity means sickness of body, producing disturbance of mental action, and that it can not occur except as the result of bodily illness. Bodily illness or disease, then, is occasionally of such a character as to develop insanity; but this is so occasional and exceptional that, in all of the various illnesses medical men are called upon to treat, insanity is the last outcome they anticipate or think of. Medical men of large experience, both in cities and in the country, have told me that they very rarely have a case of insanity in their own practice; that is, among their own personal patients. One of the most distinguished medical men in western New York, with a large practice both direct and consulting, told me some years ago, when in consultation with him in a case, that he had seen so little of insanity in his own practice that he did not feel like undertaking the treatment of the case. The case was one of profound melancholia. When I said to him: "You must have had cases of depression to treat in so large and varied a practice?" "Oh, yes," he replied, "hundreds of them." "What do you do with them?" "Get them to quit work, to stop talking of themselves, and stuff them with food."

This case was a tired-out business man who, under perplexities and worry, had lost sleep and appetite and, consequently,

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strength, had passed through a stage of depression, though continuing at his business, and finally had melancholia with intent of suicide. Until this point had been reached, neither he nor his family had applied to a physician, but, on the contrary, they had exercised a vigilant secrecy.

In 1879, one of the most careful and prominent practitioners of New York city told me that, among the great number of women he had attended in confinement, he was surprised, in looking over the past, to see how few had suffered from puerperal insanity or from the melancholia which is said to come on with change of life. Repeating this to a general practitioner whose practice was largely among the wealthy, he, also, said that this was his own experience.

I cite only these instances out of a great many that I have heard from those with whom I have talked upon the subject of the cases of insanity in their own individual experiences. I had observed many years before, that a very large proportion of the patients brought to the hospital at Utica were really without family physicians—persons who called in medical men only in extremities, dosing themselves ordinarily with known or patent remedies, or those who called indifferently and indiscriminately for medical services when they desired them. I have thought that I could see the reason for the fact of so little insanity existing among the many suffering from all kinds of depressing affections under careful practitioners. They did not let them become ill enough to become insane. They anticipated the morbid conditions of body, and any morbid drift of mental action likely to lead, if neglected, to insanity. They looked after the younger members of the family in whom defects of health appeared. All this certainly is in the nature of preventive measures of the most useful character.

Among the most important of anticipatory measures, is the early recognition of fagging of the brain, and the fact that such fagging is simply a depressed physiological state, whether found in children, youths, or adults, whether among the wise or the ignorant, the high or the low. In such conditions, we must recognize the absolute necessity of sustaining and restoring the

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energies by rest and nutritive food, whether there be appetite or not, and the value of blood-enriching tonics. These are the methods of relief which should be applied, instead of advising traveling, varied scenes, and social life, to divert the thoughts, or the administration of hypnotics or narcotics to quiet the system. Persons in such conditions are usually restless, more or less sleepless, with a variable appetite, and, while willing and anxious to talk about themselves, they are not inclined to social life, amusements, or traveling. These things, valuable, ordinarily, as recreation, are to them weariness of the flesh and, still further, exhaustion of the strength. It is true that the persistent plea of such patients is generally for remedies that will give comfort and ease, and especially sleep; and they may secure by exercise a degree of weariness that will lessen restlessness, and they may secure sleep from sedatives and narcotics. Still, this class of remedies, while giving temporary comfort by tranquilizing the nervous system, at the same time is apt to disorder nutrition and assimilation, and is likely to do more harm than good. The prevention here comes, in recognizing the true condition as brain-fag, and in resisting the plea for sedatives[1] and substituting food and rest. Few practitioners of experience can fail to recall instances of mistaken treatment or no treatment which gradually carried the patient into hypochondria, and from that into melancholia, and from that into mental failure and dementia. This is especially true with regard to business men who suffer with mental worry, and women suffering from domestic griefs and over-toil, who at the same time lessen sleep and also the quantity and quality of their food, and withdraw themselves largely from the air and sunlight. Many such cases end in suicide, unexpectedly, both to the family and the physician. I have been consulted in many such cases both by physicians, after wearying transitions in the patient for months from better to worse, and by persons who have resorted to patent medicines for nervous disorders, debility, etc., as they have seen them advertised; and, no matter what be the intelligence of the

[1] These remarks have reference to the common abuse of bromides, etc. Their great value as remedies can not be questioned.

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persons, there is no plea made more persistently and more urgently than for something to make them sleep. They want medicines to do wholly what food and rest ought to do mainly, and what medicines only assist in. Children and young persons, overtaxed at school by studying in bad air, grow pale, languid, irritable, and restless, lose appetite and sleep poorly. We know in such cases that food given with blood-enriching tonics, as phosphated elixirs of iron and cinchona, or gentian, or the chloride of iron, with barks, at meals, and malt, either liquid or dry, given with milk on going to bed, will relieve this condition of malnutrition from over-tax much better than what are called "quieting" remedies. We have received into the hospital many young patients under such circumstances, where I have felt that timely medical advice and aid might have met their condition at a stage which would have anticipated and prevented the development of insanity. There are such cases in the hospital now. The same remark applies to children of older growth.

There is one further hint of great importance to the development, growth, and stable health of children. Children or youths at school or at work, who are attacked with acute diseases, should not be returned to the school or the workshop until after complete convalescence; as in cases of fever, measles, and diphtheria, and especially where the nervous symptoms have been more or less pronounced. It is too common to allow such children to go back to school or to work as soon as they are fairly about. The brain, after such disturbance of circulation and nutrition, particularly needs rest. I have seen great evil from neglect of this course in many cases. The children are unable to work and to recuperate at the same time, the general health is lowered, the anæmic state becomes persistent, chorea and hysteria often follow, and the physical development is impeded. Many cases are brought to the asylum, in which the history goes back, through years of more or less delicate health, to neglected care in convalescence from these diseases; and I feel that I can not too strongly impress the importance of this matter.

The early recognition of alteration of character, changes in the way of thinking and acting as manifested in the ordinary

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topics of conversation, evidence of distrust and suspicion of others, over-timidity about ordinary business or household affairs, unusual anxiety about children, etc., all are early indications of mental unbalance. They are among the early changes of character, often shadowy and ill-defined, but at the same time distinct enough to be recognized. Just at this point, attention to the physical condition and a frank statement to the person of the necessity of resistance to such drift of thought, are of the highest importance, and, in a vast number of instances, would prevent the development of insanity. Of course, it is assumed that each person must be judged of from his or her own stand-point. What would be cases of worry or anxiety in one person might not be in another; and, therefore, it must be the change observed in each person; *i. e.*, how far he or she has departed from the natural, normal course of feeling, thinking, and acting. Such persons are ill; and it does not do to direct attention only to the morbid drift of thought and say: "Oh, you are nervous; you must throw these things off; take exercise; walk two or three miles every day," etc.

I remember the case of a young lady whose friends called upon a physician in New York, stated her case, and recited certain marked changes in her conduct, habits, etc. She was unnaturally reticent, apprehensive, and at times seemed unable to keep her attention on her studies or ordinary duties. The physician had two or three protracted consultations, and then said: "There is nothing particularly the matter. She needs cheerful society, country life, and long walks," and he advised that she be taken to a place in the country where this would be secured. He gave the friends a long list of written directions (afterward handed to me) for physical exercise consisting very largely of walking, ordered frequent ablutions and plain diet, and assured the friends that they need have no apprehensions about her. Within forty-eight hours, she was received at the asylum in a state of acute mania.

Another instance was that of the daughter of a Congressman residing in Washington, who, after some four months of very active social life, was called upon for some weeks to attend assidu-

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ously upon a sick member of the family, became sleepless, depressed about her spiritual condition, and reserved, and lost flesh. Her father concluded to take her home, and with his family he stopped on the way in New York, as these manifestations were increasing in intensity, and consulted a physician. He was advised, after several consultations, to return with her to Washington, to re-enter society, to go to places of amusement, to theatres, etc., or, if he went home, to give her all the social life possible, and thus throw off her fancies. · On the way home, she became so excitable, and finally maniacal, that he telegraphed from Albany to ascertain if we could receive her into the hospital, and, in twelve hours after leaving New York, she was brought to the asylum, with furious mania.

In such conditions, the serious consideration of the practitioner is demanded to inquire carefully and frankly into the health of the individual; and the causes of the changing mental state will then be found and can be met. Such persons, under the quiet, intelligent assurance of a physician as to their condition, and given to understand that the uncertain mental state which they generally recognize in themselves is dependent upon the condition of bodily health, which can be remedied, will ordinarily assist in their own cure.

I do not feel justified in taking up the time of the Association in presenting cases. I think instances will occur to the minds of practitioners. One thing is important: patients should not be startled with statements which will arouse apprehensions and fears.

Some years ago, a gentleman arrived at Utica, from New York, in the evening, and sent his servant with a note, in which he requested me to come and see him, asking me to reply by the servant. I asked the servant if the gentleman was ill, and he replied: "No, but he seems very uneasy." I called to see him, and found him walking about anxiously. He said, abruptly: "I want you to give me a thorough examination and see what is the matter with me." I did so, and said: "I don't see anything the matter with you; nothing serious; you are probably tired out. A few days' rest, with wine at your meals, and you will get along." I found

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he had been quite actively engaged (much more than usual), had lost sleep, had partaken sparingly of food, and was quite fagged out. He then said: "Dr. —— told me two days ago that I had congestion of the brain, and that I had not come to him an hour too soon. He insisted on my remaining in New York, and then made for me the following prescriptions: First, five grains of bromide of sodium and a drachm of tincture of calumba in water three times a day, for one week; then, five grains of bromide of calcium in two drachms of camphor-water three times a day for a week; thus alternating the remedies. He added: 'If you don't find yourself relieved I shall come and see you.'"

I might give a large number of cases where, if in the early stage of change or alteration of character a course had been taken requiring rest, generous nourishment, with milk, milk-punch, a discreet nurse, and the quiet assurance of the physician, no such catastrophe would have ensued.

In this paper I have not desired to do more than to throw out a few hints on the preventive measures which are wholly within the province of every practitioner.

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EXCISION OF THE KNEE-JOINT INSTEAD OF AMPUTATION OF THE LIMB IN CERTAIN DISABLING DEFORMITIES DUE TO THE POSITION OF THE KNEE.

By Stephen Smith, M. D., of New York County.

Read November 19, 1884.

The class of cases specially referred to in this paper is illustrated by the following detailed report of cases treated.

Case I.—In 1878, a boy, aged ten years, came under my care, who had walked with a crutch since he was three years old. His special disability resulted from infantile paralysis affecting the left leg which was flexed at the knee at about a right angle. On examination, it was found that this flexion was caused by paralysis of the quadriceps extensor muscle, to such an extent that the flexor muscles (the biceps flexor cruris, and the semimembranosus and semitendinosus muscles) were not counteracted, and hence the leg had gradually been flexed upon the thigh, until it reached and maintained the position above mentioned. The limb was generally atrophied, but its actual length was the same as that of the right leg, as nearly as could be ascertained by measurement in its displaced condition. The boy walked about on the right leg and a crutch on the left side. His parents were very anxious to have him relieved, and they consented to amputation or excision of the knee-joint, if found necessary.

The first operation consisted in division of the tendons of the

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flexor muscles, with a view of straightening the limb. It proved, as predicted, impossible to straighten the leg, owing to the tension of the soft parts in the popliteal region. This condition is generally found to exist in children who have long suffered from that flexion of the knee by which the head of the tibia is removed from direct pressure upon the extremity of the femur; and it has been explained by some writers, that the femur becomes overgrown by the removal of the pressure of the tibia from its extremity. It seems much more rational, however, to explain the tension of the tissues of the ham in these cases by the long-continued contraction which has existed. It is certain that, by the most accurate measurement made in this case of the two femurs, no difference in length could be detected.

Failing in my effort, a consultation was held with Dr. James R. Wood, as to the propriety either of excision of the knee, thus straightening the leg and ankylosing the knee, or amputation at the knee-joint. Dr. Wood emphatically favored amputation. Excision of a healthy knee-joint he regarded as full of danger, however antiseptics might be employed, and he would not give his consent to the operation under any such circumstances. After a few weeks' delay, excision was determined upon and was performed with antiseptic precautions. At that time, the details of antiseptic dressings differed much from those now relied on and so rigidly enforced. The small room in which the operation was performed was subjected to disinfection with a spray-apparatus, loaned by Dr. Sass, which threw two jets of vapor. This vapor created a mist so tempered with carbolic acid that, while the odor of the disinfectant was perceptible, no inconvenience was experienced. The whole room appeared as if filled with a light fog. All the attendants were subjected to this atmosphere for ten minutes before the operation was begun. No spray was used directly on the wound, but it was continued in the room during the operation. An incision was made directly over the center of the patella, and this bone was divided. A section of the extremity of the condyles was then made, inclining from below upward, so as to give the requisite angle to the ankylosed knee. A sufficient extent of bone was not, however, removed, and a second, a third, and a fourth section was made, before the femur was so shortened as to admit of proper extension of the leg. The tissues covering the head of

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the tibia were not disturbed, nor were the crucial ligaments divided. Two silver-wire sutures were employed to maintain the bones in apposition. The two halves of the patella lay in easy apposition, but, to prevent displacement, a wire suture was inserted. The limb was fixed in position by a light plaster-of-Paris bandage, and was placed in a suspension-apparatus.

The wound healed without suppuration, and at the end of four weeks the patient was again moving about on crutches. There was still considerable movement at the knee. In eight weeks he began to bear some weight on the foot, and the consolidation was then firmer, but not complete. At the end of twelve weeks he was walking without crutch or cane, but with some imperfection of gait, owing to the ankylosis, which was not yet so perfect but that some motion, though very slight, could be obtained. In four months the consolidation, though fibrous, was so firm that motion could not be detected. He had now acquired an elasticity in his movements which so concealed the imperfection of the leg, due to stiffening of the knee, that it was difficult to detect his infirmity. About this time I exhibited him to Dr. Wood as a boy who had an affection of one of his legs which impaired his gait, and asked his advice as to the proper procedure to remedy the defect. He did not recognize the lad as the patient whom he had formerly seen, and, after directing him first to walk and then to run, declared that he saw nothing wrong in his movements.

The boy continued under observation for a year or more, during which time the left leg enlarged considerably, and his gait was nearly perfect.

Case II.—This patient was not unlike the former as to the condition of the leg. She had suffered from infantile paralysis, and the position of the leg was such that she could touch the toes to the floor, but could not bear any weight upon the limb. The head of the tibia was displaced backward on the femur, the leg was flexed, and the foot was everted. The entire limb was greatly atrophied, but not more than half an inch of shortening of the bones of the leg could be made out. The knee was not affected, but the leg could not be straightened from its flexed position without great tension of the soft parts. She had always walked with a crutch upon the affected side, simply touching the toes of that foot to the ground. The question of excision or amputation was

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sharply discussed in consultation in this case, and was decided by the older surgeons in favor of the latter, if any operation were to be performed. Excision was, however, adopted. It was not found difficult to place the head of the tibia at a proper angle with the excised extremity of the femur. Under antiseptic treatment, recovery was prompt, and at the end of four months the patient was able to dispense with all artificial aids in walking. When last seen, the limb had increased in size markedly, and was in every respect thoroughly useful. The gait betrayed a slight halt due to the fixation of the joint at the knee.

Remarks.—The results of excision in these cases were very gratifying. The operation itself was attended with no unfavorable symptoms whatever in either case. Consolidation progressed rapidly, but, as the head of the tibia was not excised, the union was fibrous for a long time, if, indeed, it did not remain so permanently. Motion could have been preserved at the joint by manipulation if it had been required, but, owing to the feebleness of the limb, firm union was considered essential to its future usefulness. Limited motion continued long after the patients began to walk, but finally the union became firm and unyielding.

The absolute value of these limbs after successful excision is surprisingly great. Sustained and strengthened by a firmly consolidated knee-joint, the limb bears its part in locomotion, with increasing vigor and power. In both cases, the long-atrophied limbs developed markedly in size from use, and they became more and more useful while the patients were under observation.

In both instances an effort was made to impair as little as possible the normal structures of the joint. For this reason the cartilage of the tibia and the inter-articular cartilages were uninjured. In excising the extremity of the femur, thin sections were made with a fine, butcher's saw until the requisite quantity of bone was removed. The entire epiphysis was not excised, and hence the conditions for the future growth of the femur were, as far as possible, preserved. What will be the final re-

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sult on the growth of the affected limb by preserving the tissues of the joint and bringing the limb into active use, remains to be determined.

The question of excision or of amputation in this class of deformities was fully discussed in these cases, and the decision was either to perform no operation or to resort to amputation. Against excision it was alleged that, as compared with amputation, it was, first, the more dangerous operation, and second, that the resulting limb would be weak and useless. In favor of amputation, it was decided that the resulting stump would be useful for an artificial limb, whether the point of operation were below or at the knee. It should be stated that the influence of antiseptics, as modifying agents in the operation, had no weight with those declaring in favor of amputation.

Excision was preferred by the operator for the following reasons: First. It was believed that, by the use of antiseptics, the operation of excision would be quite as free from danger as amputation. The result warranted the conclusion. Second. The straightened limb, ankylosed at the knee, would be more serviceable than any form of stump at or near the knee. In this respect the result fully sustained the conclusion.

The following statement is submitted:

Excision is to be preferred to amputation in deformities of the leg resulting from infantile paralysis, which so displace the bones of the knee as to prevent their being brought into position for locomotion.

There are many cases of flexion of the knee, and others of partial displacement of the bones, due to affections of the joint, rendering the limb quite useless, which are frequently subjected to amputation, but which would result in far more useful limbs if excision were performed. The mortality from excision in chronic diseases of the knee which cripple the limb is, in our time, with the thorough use of antiseptic appliances, no greater than from amputation at the joint or in its vicinity. As to the comparative usefulness of a leg ankylosed at the knee and of a stump in that region, perhaps no better authority can be cited than that of Dr. E. D. Hudson, who had a very large experi-

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ence in supplying artificial limbs to soldiers during and after the war. Much as he valued amputation at the knee, as furnishing the best form of stump for an artificial limb, he always preferred an ankylosed knee; and he gave his advice accordingly, when the question of excision or of amputation was under consideration.

DISCUSSION.

Dr. S. W. Gross, of Philadelphia.—There can be no difference of opinion with regard to the relative advantage to be derived from amputations above and below the knee-joint; but I take it that excision of the knee-joint is not a proper operation in all cases of deformity. When we have to deal, for example, with an angular bony ankylosis or synosteosis, I see no necessity, in the great majority of cases, for resorting to excision at all. There is an extremely simple and safe operation, which originated with my father, Dr. S. D. Gross, many years ago, and is described in his work on surgery, but which seems to have escaped the attention of the majority of the profession. Suppose a case to be one in which the adhesions between the articulating surfaces are completely osseous, the leg being bent at an angle interfering with progression; the surgeon should feel for the line of division between the tibia and the external condyle, there make an incision not more than half an inch in length, introduce a chisel into the opening, and break up the osseous adhesions; then place a towel over the patella and separate it from its connection with the external condyle by blows with the mallet. My father did six operations of this kind; and I performed one upon a medical student three years ago, who got up and walked about in three weeks. All the patients upon whom this operation was performed recovered without any untoward symptoms. The position of the limb should not be entirely corrected at one sitting, as this might endanger the popliteal vessels; but the bending process should be repeated after two or three days, the patient being under the influence of ether. I am of the opinion that this operation should be more

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widely practiced, in preference to excision, in cases of osseous ankylosis of the knee-joint.

With regard to the mortality from amputations above and below the knee, this has been decidedly reduced during the past few years, so that at present no surgeon expects, after amputation of the leg with antiseptic precautions, a greater mortality than three or four per cent.

Dr. E. M. Moore inquired whether the statistics regarding amputation were confined to cases of disease, or whether amputations for accidents, etc., were included.

Dr. Smith replied that the cases were those of chronic disease.

Dr. Moore said he had understood that Dr. Smith referred to cases in which there was a deposit between the articular surfaces, with the formation of gelatinous tissue, rather than to bony ankylosis. He supposed that in these cases Dr. Gross would always excise the joint.

Dr. Gross replied in the affirmative.

Dr. Moore said that he had always felt a certain degree of timidity with regard to operations upon the thigh-bone, this feeling having perhaps arisen chiefly from his experience in cases of compound fracture. Last year, a case of the kind spoken of by Dr. Gross came to him for treatment, in which there was complete ankylosis. The knee was bent at fully a right angle, and any attempt at locomotion was extremely difficult and painful. Under these circumstances, he concluded to use an osteoclast, fashioned after that of Robin, of Lyons, France, which he saw at the International Medical Congress at Copenhagen. He succeeded in breaking the thigh just at the desired point, three inches above the knee, and union took place at the angle best adapted to locomotion. The result of the operation could not have been more gratifying. He mentioned the case more particularly because MacEwen advocated another mode of treatment, dividing the bone partially with a chisel and then fracturing. He employed this method upon young persons principally, in whom the bony tissue is not so firm as in adults. The operation was performed for knock-knee, and the bone was divided two or three inches from the joint. In his paper read before the International Medical Congress, MacEwen reported about eight hundred cases of his own operations, and about two

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hundred more, of operations performed by other surgeons. Out of the whole number, there occurred but five deaths. Robin reported two hundred cases in which he had fractured the thigh just above the knee with the osteoclast, and there had been but one death. The objection which MacEwen brought against Robin's method was that he could not be perfectly sure of the point where the fracture would occur.

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THE RELATIONS BETWEEN TUBERCULOUS JOINT-DISEASE AND GENERAL TUBERCULOSIS.

By Frederic S. Dennis, M. D., of New York County.

Read November 19, 1884.

Mr. President and Gentlemen: The past few years have been marked by important changes in our views regarding the traumatic origin of joint-disease. Recently, pathologists have proved that joint-disease, in the great majority of cases, is primarily due to tuberculosis, and that traumatism is either only a secondary factor in the causation, or, if it be ever the primary cause, the cases in which this occurs are very few. The experiments and observations which have been made in pathological laboratories upon the lower animals appear to accord with what surgeons have found clinically to be the case in studying joint-disease in man; and all these instances in which joint-disease is produced artificially have been found to have counterparts in the human body. This radical change of opinion in regard to the ætiology of joint-disease has not yet been accepted by some surgeons, and the occasion of the meeting of the New York State Medical Association is an appropriate one on which to discuss such an important topic in surgical pathology. My object, in the present paper, is to present some microscopical and pathological specimens which show beyond peradventure the tuberculous origin of joint-disease, and at the same time to avail myself of these specimens to discuss the relation between tuberculous joint-disease and general tuberculosis.

The time allotted to me does not permit a discussion of

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the clinical history, diagnosis, prognosis, and treatment of tuberculous joint-disease. A discussion of these topics, which are of paramount importance in connection with the questions which I shall consider, will be deferred for the present, and will form in the future a subject for another paper.

Before entering upon a discussion of the relation between tuberculous joint-disease and general tuberculosis, it is well to attach some definite and precise meaning to these terms. This preliminary step seems necessary, not only on account of the confusion which has been caused by the recent introduction of these terms into surgery and their indiscriminate use by surgical writers, but also because a clear understanding of the nomenclature is indispensable, at the outset, to an intelligent discussion of the subject.

By a tuberculous joint is meant a joint in the different tissues of which the bacilli tuberculosis of Koch are present, although it does not always follow that they can be found; and by general tuberculosis is meant acute miliary tuberculosis. The bacilli tuberculosis, which are the infective agents, are developed in a central focus, and the focus, in the majority of the cases, consists of a broken-down, caseous lymphatic gland. From this focus, dissemination of bacilli proceeds and causes acute miliary tuberculosis. Another term applied to caseous lymphatic glands is scrofula; and hence it is apparent that scrofula acts by furnishing a suitable soil in which the infective agents develop. It does not come within the province of this paper to discuss the relation of scrofula to tuberculosis; but it will suffice to state that pathological experiments and clinical observation prove without doubt that an intimate relation exists between these two affections. The best proof of this statement lies in the fact that the appearance of scrofula is usually associated with the presence of tuberculosis, and that when one condition is present the other is almost invariably found. Tuberculous joint-disease, however, can develop primarily without the presence of scrofula; or the joint-disease may be secondary, as when metastasis occurs from an organ in which infective agents are present. Thus, as metastasis may occur in the lungs from a caseous degeneration of

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the bronchial glands, so a tuberculous peritonitis may arise from caseous retro-peritoneal glands. In a case recently reported in "La France médicale," a tuberculous osteitis was developed by metastasis from a tuberculous pleurisy which antedated the osteitis by a year.

A knee-joint may become primarily attacked by tuberculosis without any other focus. This condition has been seen in autopsies, although it is rare as compared with the number of cases in which the joint-disease is the result of a metastasis. It has been shown, in quite a number of cases, that a primary source of tuberculous osteitis, in the vicinity of the knee, for example, has been a focus situated in the cancellated tissue of the lower epiphysis of the femur, and that the caseous products of the central focus have discharged themselves in a direction away from the knee-joint, the patient thus narrowly escaping local joint-infection. This important clinical fact teaches a practical lesson of great value; *viz.*, that surgical interference can avert and ward off a general tuberculosis, if the caseous abscess be trephined, thoroughly gouged out, and carefully scraped with a Volkmann's spoon. Iodoform packed into the abscess-cavity and sulcus destroys any of the remaining infective agents, and general dissemination is thus prevented. My own clinical experience has illustrated this in tuberculous osteitis, in several cases where this method has been employed. In a recent contribution, Professor Volkmann made an analysis of two hundred and fifty cases of excision of the hip for joint-disease, and could find in the entire number only five or six cases which were not tuberculous. Koenig relates a case where a resection of the knee was performed for tuberculous joint-disease. The wound was aseptic, and, two weeks after the resection, symptoms of acute miliary tuberculosis were well pronounced. The patient died, and the autopsy revealed the presence of miliary tubercles in nearly all the organs of the body. The same author reports another case in which, three weeks after resection of the hip, symptoms of general infection supervened, such as headache, projectile vomiting, facial paralysis, and coma. The patient died, and the autopsy showed the cause of death to be acute miliary

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tuberculosis. In all the organs, tubercles were found, and the starting-point, or focus, was in a broken-down lymphatic, caseous abscess of the neck. The same writer adds still another case illustrating the general principle, but affording at the same time an example of local primary infection in a joint, to which reference has already been made. This patient died two weeks after a resection of the hip-joint, and the post-mortem examination showed the cause of death to be acute miliary tuberculosis. The starting-point in this case was an abscess in the head of the femur. Recently, a surgeon has reported a case of acute miliary tuberculosis developed by dissemination of tubercles from a strumous abscess of the mastoid cells. This case is in marked contrast to two cases sent to me, in which, after trephining, gouging, and scraping the mastoid cells, both patients recovered and afterward enjoyed excellent health. While these last two cases which have come under my own observation are wholly inadequate to establish any general principle, they nevertheless serve as links of evidence in the chain of argument which will be presented at the conclusion of this paper. Acute miliary tuberculosis has followed in a certain number of resections; a fact which suggests at once to our minds, that any operation which has for its object the destruction of a central focus must be early, thorough, and complete.

Professor Albrecht, of Zurich, has recently published an article in the "Deutsche Zeitschrift für Chirurgie," in which he has tabulated three hundred and twenty-five cases of joint-disease, with reference to the ætiology of the affection. He has pointed out, in this contribution, that the joint-disease, in one-third of the entire number of cases, was associated with scrofula, and that in only one-sixth of the number could the affection be attributed to traumatism. He also demonstrated that the mortality was twenty-two per cent greater when scrofula was associated with the joint affection than when the disease could be traced to traumatism. These clinical facts clearly prove that there must be a causative relation between tuberculous joint-disease and general tuberculosis; but exactly what this relation is, and how it is to be scientifically defined, are questions most

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difficult to answer in the present state of our knowledge of tuberculosis. I shall endeavor, however, to throw as much light upon the subject as clinical observation and experience permit, and at least to show that a certain relation exists between these affections.

The distinction between acute miliary tuberculosis and local tuberculosis has been compared by pathologists to the difference between pyæmia and ordinary suppuration. Pyæmia, which is a form of suppuration always associated with metastatic abscesses, is altogether different from common suppuration. Hence it is evident that acute miliary tuberculosis is a special variety of the many diseases termed tuberculous, just as pyæmia is a special variety of common suppuration. While this comparison serves the purpose of clearly defining the difference between pyæmia and common suppuration, on the one hand, with acute miliary tuberculosis and local tuberculosis, on the other, the comparison has been further employed by pathologists to explain a similarity, in the mode of origin and the method of dissemination, between acute miliary tuberculosis and pyæmia. In pyæmia, there is an infective focus from which infective emboli start, and the latter develop metastatic abscesses. These infective emboli, as Heuter has shown, contain micrococci; and it is by the presence of these micro-organisms that the small miliary and the large metastatic abscesses are produced in distant organs which are connected by vessels proceeding directly from the seat of infection. If the infective embolus be detached from an infective thrombus and swept through the blood-channels belonging to the portal system, as, for example, after the operation for the removal of hæmorrhoids, the metastatic abscess is found in the liver; if to the systemic circulation, as, for example, after the operation of trephining in compound fracture of the skull, metastatic abscesses are found in the lungs, though exceptionally they may occur in the liver, even in an injury to the head, when the emboli are small enough to pass through the pulmonary capillaries, or when they pass by anastomosing vessels directly to the liver. In acute miliary tuberculosis, there is also an infective focus, as in pyæmia; and this focus is a broken-down caseous lym-

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phatic abscess. From this scrofulous focus, acute miliary tuberculosis develops and is disseminated throughout the body; but, instead of developing metastatic abscesses, as in pyæmia, there is found a collection, or, in German phraseology, a "herd" of miliary tubercles in the different organs and tissues of the body. As a point of contrast, it may be stated that the blood-vessels are the channels of dissemination in pyæmia, and the lymph-vessels, principally, in tuberculosis. While, then, the dissemination of infective agents is similar in pyæmia and in acute miliary tuberculosis, the nature and characteristics of these infective agents differ widely. This clinical fact has been proved by experiments upon the lower animals, for pyæmia has been developed in animals by the inoculation of putrid matters, and acute miliary tuberculosis has been produced by inoculation of the bacilli tuberculosis. Multiple foci, situated in broken-down, cheesy, lymphatic glands, in which bacilli develop and multiply, have been the source from which dissemination of acute miliary tuberculosis has proceeded.

[Professor S. W. Gross, in the course of his valuable remarks upon the subject of tuberculous joint-disease, called the attention of the Association to the fact that tuberculous joint-disease and a resulting general tuberculosis might be compared to the dissemination of carcinoma, which may be local at the outset and general in the later stages of the disease. The analogy, I think, may be carried still further and be made to include sarcoma, in which the infection is local at first and becomes general as the disease progresses. In the case of carcinoma, the disease spreads by means of the lymphatic channels, a method of dissemination which corresponds to that of tuberculosis, while, in sarcoma, the disease spreads by means of the blood-vessels. I am inclined to the opinion, after much study, close observation, and clinical experience, that all malignant tumors have, at the outset, a local origin, and that general infection, in the great majority of cases, can be prevented, if surgical interference be made early in the course of the disease. This view is at variance with that of many surgeons, and few authors will indorse the statement. Whatever theory may be adopted with regard to the ætiology of

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tumors, whether the theory of Cohnheim, of Virchow, or of other pathologists, they may all be partially, if not entirely reconciled to this view by clinical experience. Tuberculous joint-disease behaves like carcinoma and sarcoma in its dissemination; and an analogy in the clinical history is also observed. In support of the view of the local origin of these diseases, I might cite at least a dozen cases upon which I have operated, and of which I have carefully preserved the notes, which indicate that, no matter what variety of malignant disease be found, early interference may prevent general infection and death. The tumors, in these cases, were all carefully examined by Professor Welch, who pronounced them malignant. I have seen the cases from time to time, and in all of them over two years have elapsed, and in some nearly ten years; or at least a sufficient time has passed to make one confident in the belief that return will not take place. I have in my case-book notes of twenty cases which I have examined, death having occurred from metastasis after removal of a malignant growth; but in all of these cases I am convinced that the operations were deferred until too late, when general infection had already been established; and that, had early operation been resorted to, the cases might have terminated differently. I have other cases which are still under observation, but a sufficient time has not elapsed to enable me to establish any general principle.

In tuberculous joint-disease, my experience accords with what has already been said with regard to malignant tumors; that early operation will prevent dissemination, and that the disease at the outset is a purely local infection. The number of cases operated upon justifies the statement that early and thorough operation, or, what is better, treatment which is directed to the management of the local infection, is attended with excellent results.][1]

Before referring to the specimens which are to be exhibited, it may be well to mention a few salient points in connection with the history of the patient from whom the specimens were

[1] The above has been introduced since the reading of the paper. See remarks by Dr. Gross, p. 346.—EDITOR.

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taken, so that the relation of the joint-disease to the general tuberculosis which followed may be better understood.

G. V., aged twenty-two, single, by occupation a farmer, was sent to me by Dr. Knight, on February 13, 1884. In the previous spring, the patient sprained his wrist while plowing. For ten months before admission into the hospital, he suffered from an inflammation of the wrist-joint, which he attributed to traumatism. Upon examination of the wrist at this time, which was nearly a year subsequent to the accident, there was found fluctuation in the joint. The hand was useless, painful, and swollen. Two incisions were made, the pus was evacuated, and a drainage-tube was introduced. The forearm and hand were placed upon an anterior splint. The joint was washed out daily with bichloride-solution (1 to 2,000), and the patient temporarily improved. In a fortnight, a new inflammation was set up, with cellulitis of the forearm. When this attack had subsided, in April, 1884, the patient was anæsthetized, and a thorough exploration of the joint was made, with the view of resection or amputation, according to the condition of the parts. Upon freely opening the joint by two lateral incisions, the carpal bones were found carious, as were the heads of the metacarpal bones and the lower extremities of the radius and ulna. The joint contained pus and a gelatinous, pulpy mass. The conditions were so unfavorable for resection that amputation was performed by Teale's rectangular-flap method. The patient recovered in a rapid and satisfactory manner. The wound healed by primary intention, with no constitutional disturbance. The joint and hand were examined by Professor Welch, who found bacilli tuberculosis in the thickened, gelatinous mass. This at once established with accuracy, and beyond all doubt, the diagnosis of tuberculous joint-disease, and it forms the most important link in the chain of evidence which is to follow. Nearly three weeks after the operation, during which time the patient had been up and about and apparently in good health, he was seized with violent projectile vomiting, rise of bodily temperature, slight facial paralysis, and severe headache. The vomiting, headache, and delirium persisted, in spite of everything which was done to relieve him. The patient died after eight days. Shortly before death he became comatose and had rigidity of the post-cervical muscles, but no inequality in

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his pupils. The abdomen was retracted, the bowels were constipated, and the temperature just before death was as high as 103° Fahr.

Professor Welch made the autopsy, which revealed abundant gray miliary tubercles at the base of the brain, especially in the fissura Sylvii and along the chiasm and tracts. The report of the autopsy further shows that there were tubercles on the lower part of the convexity of the brain and on the choroid plexus. The peritonæum, liver, spleen, lungs, pleura, and meninges were studded with gray miliary tubercles. The left kidney was found full of cysts containing a thin, whitish, turbid fluid, holding cheesy flocculi in suspension. The cyst-walls contained cheesy masses; the left ureter was three times its normal thickness; and the cavity of the ureter was not much dilated, but contained dry, caseous matter, which occluded the lumen of the duct.

The left seminal vesicle contained a turbid, white fluid. The left epididymis presented a few small caseous foci, and the corresponding testicle contained a few gray miliary tubercles. The left vas deferens was patent, but at some points it contained cheesy matter in its walls and lumen.

The right kidney was large and soft and contained some small miliary tubercles, a few of which had cheesy centers. The right ureter was normal. The right seminal vesicle contained a turbid, white fluid. The right epididymis was firm, nodulated, and somewhat enlarged, and contained a mass of friable, yellowish-white caseous matter in nodules. The right testicle was filled with large, firm, gray, discrete miliary tubercles. The right vas deferens was filled along its whole course with caseous matter partly liquefied.

There were many other points of interest in the autopsy, which was fully reported through the kindness of Professor Welch; but those only have been given in detail which have special reference to the subject under discussion. The prostate gland contained gray miliary tubercles and a few small caseous nodules.

The floor of the pars prostatica of the urethra presented many miliary tubercles, a few of which were cheesy. A few scattered, small, translucent tubercles could be seen along the urethra, in number decreasing from behind forward. There was an indis-

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tinct, transverse cicatricial band at the junction of the membranous and prostatic portions of the urethra.

This, then, was a case of primary genito-urinary tuberculosis. The disease began in the testicle, and from this focus general tuberculosis was disseminated. The relation of the wrist-joint to the general tuberculosis is yet to be considered.

The most important questions which naturally suggest themselves in connection with this interesting case are the following:

First. Did the joint-disease in which the bacilli tuberculosis were found develop the acute miliary tuberculosis?

Second. Did the scrofulous, cheesy abscess of the testicle afford a suitable soil in which were developed the bacilli which were the cause of the tuberculous joint-disease?

The solution of these difficult problems is not easy; but, judging from a study of many cases, from clinical experience, and from results obtained by inoculation of the lower animals, the conclusions at which I arrive are, that both of these factors enter into the causation of acute miliary tuberculosis, and that, in very exceptional cases, either of them may act to develop acute miliary tuberculosis.

To present these questions again in a suitable form for discussion, without a special application to the case which has just been considered, I may ask,

First. Does a joint become the seat of a scrofulous affection absolutely and *in toto* because the bacilli are there from the very outset, and, consequently, give to it the characteristic inflammation? or,

Second. Does a joint become inflamed as a result of traumatism, and then a simple traumatic synovitis or arthritis become converted into a tuberculous joint-disease, on account of the entrance of the bacilli tuberculosis from a broken-down, cheesy, scrofulous gland into an already inflamed joint?

I am enabled to present to you for microscopical examination, through the kindness of Dr. McNamara, one of the assistants in the Carnegie Laboratory, the bacilli tuberculosis which were found in this wrist-joint after the amputation but before

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any general symptoms of acute miliary tuberculosis had been developed. I have also before me the post-mortem specimens illustrating the pathological changes of the organs which were infiltrated with acute miliary tuberculosis. The consideration of the clinical history, the demonstration of the bacilli, and the character of the post-mortem specimens, form a most interesting and unique group; and the conclusions which I should draw from this case and from these specimens are these:

First. Acute miliary tuberculosis is an infectious disease which is disseminated through the body from a central caseous focus, which focus in this particular case was situated in the testicle. To show that I am justified in forming this first conclusion, I have only to refer to the brilliant experiments of Burdon-Sanderson, Klein, and others, who have inoculated the lower animals with scrofulous matter obtained from a cheesy mass, and who have thus developed a disease similar to acute miliary tuberculosis in man. Moreover, the same disease has been developed by inoculation with the pus from a cold abscess and from the granulations of a strumous joint. Further, in support of this first conclusion, may be cited Max Schüller's interesting experiments, in which he caused animals to inhale tuberculous products, and developed in them general tuberculosis. The joints of these infected animals were then subjected to contusions, and the result was the development of tuberculous joint-disease. Still further, in support of this first conclusion, may be mentioned the startling fact that some of the animals subjected to imprisonment with the infected animals suffered from joint-disease of a tuberculous character. It is a most noteworthy fact, also, that, whenever rigid precautions were taken to guard against any possible infection, tuberculous joint-disease did not follow injury to the joints. These important facts clearly demonstrate the infectious character of tuberculosis, and they suggest the wisdom of recommending precautionary measures in the treatment of the disease from a medical point of view. The experiments upon the lower animals place beyond all possible doubt the infectious character of tuberculosis and its intimate relations with acute miliary tuberculosis.

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Second. Removal of scrofulous, cheesy, broken-down glands, with a central caseation, which are frequently the starting-points of general tuberculosis, is a means of eliminating one of the chief sources of general tuberculosis and of tuberculous joint-disease. This second conclusion, I am aware, may not be accepted by some surgeons in this audience; but still the evidence is beyond doubt in the minds of those who have given the subject thoughtful study. M. Rendu, whose valuable contributions upon this subject may be found in "L'Union médicale," Paris, 1881, has accepted the view that scrofula and tubercle bear the same relation to each other as soil to seed; and that, in scrofulous soil, tubercles rapidly grow and multiply, until, from this focus, acute miliary tuberculosis is disseminated. In support of this second conclusion, I may state that, in cases of death from general tuberculosis and tuberculous joint-disease, post-mortem examinations show that caseous masses are absent in only twenty per cent. In all probability, caseous masses are absent in even less than twenty per cent of the cases, for these masses may have been either overlooked, or changes may have occurred to obliterate the traces of an old abscess. There must be subtracted also, from the original twenty per cent, those cases, which are few in number, where the joint affection was primarily a local disease. Thus it is evident that, when these deductions are made from the twenty per cent, there is but a small percentage left, of the cases of tuberculous joint-disease, in which strumous and scrofulous glands are not actually proved to be starting-points of acute miliary tuberculosis.

In the case, the specimens of which are before me, the starting-point was, in all probability, in the caseous, scrofulous, lymphatic abscess of the testicle. That these foci are the starting-points, can be demonstrated at almost any autopsy; for they are easily found, except in a very limited number of cases, amounting only to a small per cent. If, then, acute miliary tuberculosis can proceed from this condition of the gland, it is of the highest importance that surgeons should recognize this clinical fact and adopt prophylactic treatment. In illustration of this principle, I shall cite a case in my own experience, which is a

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striking example of the wisdom of adopting preventive means to eliminate this source of infection, so that, should any exciting cause arise to develop or produce a joint-disease, the affection may not assume a tuberculous character.

In 1880, I removed from a young man, who resides in a neighboring city, a large cervical lymphatic gland, which had broken down in the center into a caseous mass. The operation was a difficult one and involved great danger, owing to a dissection which exposed the carotid artery, the internal jugular vein, and the pneumogastric nerve, beside other important vessels and nerves. He recovered from the operation, and since the removal of the caseous mass he has enjoyed excellent health. A year after the extirpation of the caseous abscess and gland, I was called to treat the same patient, who was then suffering from a traumatism of the elbow, which resulted in a fracture of the olecranon, extending into the cavity of the joint. I was apprehensive lest a serious trouble might arise with this local injury and the general diathesis. The fracture, however, repaired kindly, and the movements of the joint were in no way impaired. Upon questioning him recently with regard to the utility of this joint, he told me that he had no trouble with it and had played lawn-tennis with this arm as he was accustomed to before the fracture. It is not extravagant to say that the extirpation of the caseous abscess, with the chain of scrofulous lymphatic glands, from the young man's neck a year previous to the fracture into the elbow-joint, removed, in his case, the chief source of general tuberculosis and tuberculous joint-disease. Some of the caseous matter from the tumor was injected into a rabbit by Dr. Welch ; but this experiment failed to give any positive result. However, a negative result is of little value when it is considered how many conditions may arise to prevent the success of the experiment. A positive result would have placed the subject beyond doubt in the minds of all. Some very recent experiments by M. Arloing showed that inoculations from a caseous lymphatic gland were followed by tuberculosis in a number of guinea-pigs ; but all the rabbits operated upon remained unaffected. When the caseous matter was injected into the peritoneal cavity, the guinea-pigs died of tuberculosis, but the rabbits survived. The caseous matter was taken from the neck in a case of

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scrofula occurring in a young man. Might not the fact that a rabbit was used in my case for inoculation thus explain the failure? In another set of experiments by M. Arloing, when he inoculated guinea-pigs and rabbits with the products of a strumous joint, both animals had tuberculosis. In still another series of experiments, M. Arloing inoculated guinea-pigs and rabbits with the matter from a cervical gland taken from a young woman who had no other symptoms of scrofula at the time. Both guinea-pigs and rabbits died of tuberculosis, and the patient died a month afterward of acute miliary tuberculosis. The failure to produce tuberculosis in the rabbits at one time, and the success of inoculation at another, can not as yet be explained; but this fact serves to illustrate the point that the failure in my own case is no reason for assuming that bacilli were not present, simply because tuberculosis did not follow the inoculation of the caseous mass from the young man's neck.

The patient's general health was improved by the operation and the deformity was relieved, circumstances in themselves of great importance; but it may also be said that the extirpation of the caseous mass removed one of the chief sources of tuberculous joint-disease and general tuberculosis. The young man's mother died of general tuberculosis; his brothers and a sister have traces of the same dyscrasia; and, with this history, and with caseous lymphatic glands, there certainly exist the conditions which are known to favor the development of tuberculous joint-disease and general tuberculosis. In the light which experimental pathology has thrown upon this subject, it is fair to assume that tuberculous joint-disease and general tuberculosis would have resulted, had the caseous lymphatic focus, with its bacilli, been present in the neck at the time of the injury to the joint.

It has been my custom for several years to remove all cheesy masses whenever practicable. They are sources of great danger, and they should be extirpated under all circumstances. I have never had reason to regret an operation which had for its object the removal of these hot-beds for the development and the multiplication of bacilli. I have, on the other hand, seen many cases where I have been convinced that early surgical interference might have rescued patients from untimely death

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from general tuberculosis. Only recently, I removed enlarged scrofulous glands with central caseous degeneration, and in the cavity of the abscess there were many ounces of pus. The abscess-walls consisted of a pyogenic membrane, and it is in this structure, as well as in the pus itself, that bacilli are found. The parts were removed as thoroughly as possible by dissection, and the cavity was scraped with a Volkmann's spoon. The wound was then packed with iodoform, and a drainage-tube was introduced for a few days. The patient's general health, after the operation, rapidly improved, and he is now in excellent health. The deformity is relieved and his mind is free from anxiety. This case is one of many illustrating the value of the principle which has been advanced in this paper, and at the same time is another example of the prophylactic measures which can be resorted to by the surgeon to avert tuberculous joint-disease, which, with such conditions, is likely to follow any injury to a joint. Since tuberculosis has been proved to arise from the presence of these broken-down, cheesy, scrofulous glands, the importance of their removal is manifest, when statistics show that, of the number of deaths from joint disease, more than fifty per cent are due to acute miliary tuberculosis, and more than twenty-five per cent, to amyloid degeneration. The reduction of this high rate of mortality is to be attained by the removal of the sources of infection, which are caseous scrofulous glands.

My line of argument may be summarized as follows:

First.—Scrofulous abscesses are dangerous, because in them bacilli tuberculosis may develop, and from these abscesses, as infective foci, general dissemination may proceed in the form of acute miliary tuberculosis.

Second.—Tuberculous joint-disease can produce general infection, or acute miliary tuberculosis.

Third.—Traumatism may act as one of the many exciting causes to develop tuberculous joint-disease, provided the conditions be favorable.

Fourth.—Traumatism alone will not develop tuberculous joint-disease, except in cases which present certain conditions.

Finally, it is evident, from a study of the typical case that I

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have recited, that much remains to be learned with reference to the relationship between tuberculous joint-disease and general tuberculosis. If the presentation of these microscopical slides, upon which may be seen the bacilli tuberculosis which were found in the wrist-joint, and the post-mortem specimens which were taken from the patient whose sad history has been discussed to-night, should awaken an interest among the members of the Association in this important topic in surgical pathology, the object of the paper will have been fulfilled. It is to be hoped that, during the coming year, the attention of the profession may be directed to this subject, and that our next meeting will afford abundant testimony of this, in the way of collective evidence and clinical observation upon the question which is involved in the title of this paper. The profession in this city as well as throughout the country is to be congratulated upon the magnificent facilities which will soon be presented for investigating such subjects as the one which has occupied our attention this evening. Much of the knowledge that we possess upon this highly important surgical disease, affecting as it does thousands of persons, has been derived from experimental work upon the lower animals; and we are indebted for this to pathological laboratories. May the laboratory furnished and equipped through the generosity of Mr. Carnegie, as well as the one to be provided by Mr. Vanderbilt, enable us to discover other important facts in connection with tuberculous joint-disease and general tuberculosis! May these laboratories also afford places for investigating such diseases as cholera, yellow fever, and other malignant diseases to which the human flesh is heir! Thus will our knowledge be enriched, our standard of medical education be elevated, and the sufferings of humanity be alleviated. The gift of Mr. Carnegie last spring and that of Mr. Vanderbilt this autumn will enable American institutions to keep in the front rank in the advancement of medical science. In a recent address, Sir Spencer Wells calls upon the profession of Great Britain to emulate the worthy example of Germany in establishing pathological laboratories, which may be said to be fountains from which most of our knowledge must flow. With

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the munificent gifts offered to the medical profession through the generosity of these private individuals, New York is destined, with its wealth of resources and its vast clinical material, to be the great metropolis of medical education and scientific research.

DISCUSSION.

DR. S. W. GROSS.—I think it probable that no paper of greater importance than the one just read by Dr. Dennis will be presented at this meeting of the Association. A point of great practical moment in the study of this subject, was the early treatment of patients suffering from tuberculosis of the joints. I feel sure that all who have paid special attention to the pathology of tuberculosis are of the opinion that primary articular tuberculosis is identical, anatomically as well as clinically, with primary tuberculosis of the lungs, of the lymphatic glands, or of any other organ or tissue of the body. Tubercle not only acts like purulent collections, which give rise to pyæmia and metastatic abscess, but it behaves very much like some of the other gland-infecting diseases. For instance, its likeness to carcinoma is almost perfect. Being at first merely a local affection, it afterward becomes auto-infectious; and beginning, for example, beneath the cartilage of the knee-joint, it soon extends to the synovial membrane; or, beginning in the latter tissue, it extends to the cartilage, the bones and periarticular tissues, and then affects lymphatic glands which are in direct anatomical connection with the joint itself. It still more frequently behaves like carcinoma, in giving rise to secondary foci in distant organs. The analogy between carcinoma and tubercle being so nearly perfect, by resorting to an early operation (it matters not as to the form of the operation), we are enabled to rescue many patients from the dangers of acute miliary tuberculosis.

From a close study of the literature of tuberculous disease of the joints, I believe that the relation between primary tuberculosis of the articulations and general tuberculosis is very well shown by the causes of death in the joint-affections. Billroth found, in his post-mortem examinations of this class of subjects, that not less

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than fifty-four per cent died of acute miliary tuberculosis, and twenty-six per cent died of amyloid degeneration, fatty liver, etc. Jaffé found fifty per cent of his deaths to be due to general acute tuberculosis, and thirty-three per cent to amyloid degeneration. Of one hundred and seventeen resections of tuberculous joints, practiced by Koenig, twenty-three per cent of the patients subsequently developed acute tuberculosis. Of fifty deaths after tuberculosis of the bones of the foot, Münch found that not less than twenty-four of the patients, or forty-eight per cent, died of acute tuberculosis. From these data, it is obvious that primary tuberculosis of the joints and general tuberculosis bear as close a relation to each other as that which exists between general tuberculosis and tuberculosis of the lymphatic glands. Hence, in this class of cases, the surgeon should afford his patient prompt relief in order that general dissemination of the disease may be prevented. It is not always necessary, in cases of this kind, to resort to amputation or to resection. The knee-joint may be opened freely by an incision above the patella, the sub-crural bursa, synovial membrane, and periarticular tissues dissected away, and foci removed from the bone by the gouge, thus thoroughly getting rid of the diseased structure. The parts should then be sprinkled with iodoform, which undoubtedly possesses the power of preventing propagation of tubercles and certainly prevents the formation of giant-cells, one of the elements of tubercles. It is my habit to remove tuberculous glands wherever they exist, especially from the axilla; and I am quite sure that by this means I have prevented general dissemination of the disease. I am as careful to remove all the infected axillary glands in tuberculosis as in carcinoma, going up behind the clavicle and into the supra-clavicular fossa, if affected glands be found in that region. I have emphasized my remarks on this point, for the reason that I regard the subject as one of vital importance to surgeons of the present day.

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THE CURETTE; ITS PLACE AND ITS POWER IN UTERINE THERAPEUTICS.

By GEORGE T. HARRISON, M.D., of New York County.

Read November 19, 1884.

THE opinions of the medical profession with regard to the value of the curette have been conflicting, from the time it was first devised up to the present day. By some, extolled as of inestimable utility, by others it has been decried as an instrument excessively hazardous in its application. Thus Aran,[1] in speaking of the use of the curette, calls it "cette pratique hasardeuse." Becquerel[2] says: "This means (*raclement*) has always seemed to me barbarous." Scanzoni[3] observes that "the curette recommended by Récamier and Sims for the abrasion of granulations developing in the uterine cavity is an instrument based on quite erroneous theories, and is therefore devoid of all practical utility." "We fully concur," he continues, "in the views of Hildebrandt, when he says: 'Bad defects may be evoked in the sound portions of the uterus by these sharp-edged instruments, while the diseased portions remain intact; they do not, therefore, fulfill their proper purpose, with all the harshness of their action.'" The language of Dr. Emmet[4] is equally positive in condemnation of this instrument. "As regards the instrument of Dr. Sims," he remarks, "I honestly believe that

[1] "Leçons cliniques," etc., Paris, 1858, p. 472.

[2] "Traité des maladies de l'utérus," Paris, 1859, p. 432.

[3] "Krankheiten der weiblichen Sexualorgane," Wien, 1875, 5te Aufl., S. 240.

[4] "Principles and Practice of Gynæcology," Philadelphia, 1880, 2d ed., p. 617.

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the ingenuity of man has never devised one capable of doing more injury. . . . I have known peritonitis, cellulitis, pelvic abscess, and even death, to occur on removing these growths from the uterine canal with a curette, and in every instance the operator was dexterous in the use of the instrument. My views are based on a dearly-bought experience, and I believe that no man has a right to place the life of his patient in jeopardy by the use of either of these instruments in the treatment of this condition."[1] Dr. Sims,[2] on the contrary, when he so modified the original instrument of Récamier as to make it more effective and certain in application, considered that he had laid the profession under lasting obligations, and that no contribution he had made to gynæcology was so important as his reintroduction into practice of the use of the curette. Dr. A. Martin,[3] of Berlin, in the concluding lines of his article upon intra-uterine treatment, gives the following testimony with regard to the value of the application of the curette: "From these observations of mine, I think that I am justified in urgently recommending the use of the curette in cases of morbid conditions of the mucous membrane of the body, whether they be connected with pregnancy or not. I consider this procedure as certain in its final result, as devoid of danger, and not more circumstantial than certainty of success and freedom from danger demand." Under these circumstances, it may not prove an altogether unprofitable study to examine the question anew in the light of modern investigation and experience.

Our problem is twofold; first, to determine what affections of the uterus demand the application of the curette, and second, to ascertain the best method of using it in an appropriate case. In 1846, Récamier devised an instrument, which he called the curette, for removing granulations from the cervical canal. The procedure he termed *curettage*. Four years later, he modified the construction of his instrument and extended its application

[1] Dr. Emmet has reference to Récamier's curette, Sims's modification, and Simon's spoon.

[2] Oral communication.

[3] "Zeitschrift für Geburt. und Gynäk.," Stuttgart, 1881, Bd. vii, Heft 1, S. 13.

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to the removal of granulations, as well as of portions of the ovum left after an abortion, from the uterine cavity. Simon made use of a similar procedure in cases of malignant neoplasms of the uterus, and invented an instrument like a spoon, with which his name is generally associated.

Dr. Sims, in his work entitled "Notes on Uterine Surgery," introduced to the profession a modification of Récamier's instrument, which can be bent so as to conform to the direction of the uterine cavity. Impressed by the dangers attendant upon the use of Sims's instrument, Dr. Thomas devised a further modification, which he calls the wire-curette. This last instrument has been widely adopted in practice, and, especially in this country, it is the form of curette most generally used. My own experience is mainly with Sims's curette and with Thomas's modification. Simon's spoon I have used only in malignant growths.

In attempting now the solution of the problem first propounded, it is necessary to refer to analogous affections in other parts of the body, with the surgical procedures adopted for their relief, to give us a basis on which to rest our therapeutical principles. Says Prowchonick:[1] "We make use of these abrading and scraping instruments, the so-called sharp spoons (essentially like curettes, and therefore often so called, and still oftener applied in place of them), for the removal of soft, spongy masses, whether in the form of tumors or purely granular, which have formed themselves pathologically on a normal, or at least almost normal, anatomical base, such as skin, muscles, fasciæ, glandular walls, and bony cavities. Surgery teaches us, also, that these particular instruments form at the same time the best guide to the recognition of the boundaries of such destructive masses, taking away in their application nothing from the normal basis-tissue, and indicating to our sense of feeling, sometimes also to the sense of hearing, although the field of operation may not be made accessible to the eye, when we have reached the normal basis-tissue. According to the analogy of its surgical use, the sharp spoon is indicated wherever a degeneration of the mucous mem-

[1] "Sammlung klinischer Vorträge," Leipzig, 1881, S. 1513.

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brane has exhibited itself on a normal, or almost normal, anatomical basis, that is to say, the uterine muscle; a degeneration of a character that would lead the surgeon, in other parts of the body, to the application of the sharp spoon, such as granulations or new formations, whose transition into the normal tissue is not accurately cognizable to the eye, to the finger, or to instruments of another kind, but whose fundamental removal up to the normal basis forms the therapeutic demand of the case in hand." The researches of Düvelius,[1] characterized as they are by scientific exactness, have fully shown, in the first place, that, by the energetic application of the curette, sufficient material can be obtained for the purpose of microscopic diagnosis with respect to the morbid process taking place in the uterine mucous membrane; second, that, when the curette has removed the degenerated uterine mucous membrane, out of the remains left behind, a regeneration of the mucous tissue takes place, a new and healthy mucous membrane being formed by means of the young cells proliferating from the deeper parts, and that cicatrices are not produced in consequence of the use of the instrument; third, that amenorrhœa and sterility are not caused by the curette, and that, on the contrary, many women who had been formerly sterile have conceived after its application. Applying these principles to uterine affections, we may say that the use of the curette is indicated in the following morbid conditions of the uterine mucous membrane:

1. In sarcomata and carcinomata of the inner surface of the body of the uterus, when, for any reason, more radical operative procedures are contra-indicated, the use of the curette yields very satisfactory results, although they are of a palliative character. The hæmorrhage and the sanious discharges may in this way be relieved for a considerable length of time. The Sims-curette in this class of cases accomplishes the object in view most effectually. In a case of round-celled sarcoma of a diffuse form, confined to the mucous membrane of the uterine body, I prolonged the life of a patient for several years by the repeated application of the Sims-curette. In carcinoma involving the

[1] "Zeitschrift für Geburt. und Gynäk.," Stuttgart, 1884, Bd. x, Heft 1, S. 175.

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cervix, the curette has but a limited application, as other methods of treatment are here required.

2. In puerperal conditions of the endometrium evoked by retention of the remains of the ovum or of decidual membranes. When delivery has occurred at term, and symptoms during the puerperal state point to the retention of the placenta or of pieces of the membranes, it is not necessary, as a rule, to resort to the use of the curette. In such an event, the patient may be put under the influence of an anæsthetic, the finger be passed into the uterine cavity, and the offending parts can be thus removed; or we may resort to the use of irrigation of the uterine cavity with hot water to which an antiseptic has been added. In some rare cases, however, these methods may fail or be inapplicable; and then the curette comes into play, and especially Thomas's wire-curette. In a case of secondary hæmorrhage occurring three weeks after delivery, I resorted to the curette, and, after removing some shreds of decidual membrane, I had the gratification of seeing the hæmorrhage cease at once and rapid involution ensue. A much wider field, however, is opened for the curette, when pregnancy is interrupted in the first three or four months. The manual removal of portions of retained ovum or decidua under such circumstances may often be accomplished, but it may nevertheless occur that this method can not be adopted. For example, the physician may be called some time after the expulsion of the ovum and then find the uterus too firmly closed to admit the passage of the finger. There may also be considerable narrowness of the vulva and vagina, and the neck may be rigid and unyielding. The hot-water intra-uterine injections may also fail to detach the firmly-adherent remnants. In these cases, the wire-curette serves a most excellent purpose. As an illustrative case, I may cite the following:

I was called, the 1st of September, 1884, to see a young married woman, whom I found suffering from a profuse uterine hæmorrhage. She informed me that an abortion had occurred in the month of June, at about the third month of pregnancy; that, at

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the time of its occurrence, she had lost a great quantity of blood, and had since been scarcely free from a "show"; and that at times the bleeding was so free as to make her entertain grave apprehensions of a fatal result. A homœopathic physician had been in constant attendance upon her but had not succeeded in controlling the hæmorrhage; on the contrary, according to her statement, he made no effort in that direction, as he said that it was necessary for the blood to come away. The patient was pale, exsanguine, and exceedingly nervous. Examination *per vaginam* revealed the fact that the uterus was very much enlarged, and, consequently, was in a state of sub-involution. Assuming that the symptoms were due to retention of portions of the ovum, I made use of the wire-curette of Thomas, and extracted several pieces, one as large as the end of the thumb. I need scarcely add that the hæmorrhage was checked at once, and that involution afterward took place rapidly.

3. In the various forms of endometritis, especially those characterized by menorrhagia and metrorrhagia, in which the degenerated mucous membrane presents fungous granulations, the scope of the application of the curette is extensive. The pathological anatomy of chronic endometritis has lately been made the subject of thorough investigation by Ruge,[1] and a condensed statement of his researches may not be uninstructive. The mucous membrane in chronic endometritis is, according to this author, more or less strongly proliferated, vascular, soft, and spongy. The thickness is three to four millimetres, but it may attain to the thickness of a centimetre, and even exceed it. The inner surface of the mucous membrane, looking to the cavity of the uterus, is often smooth, in spite of active proliferation. In other cases, it is slightly papillary, like velvet, or elevated in the form of protuberances, proliferated to irregular rolls or even polypoid outgrowths. The uterine cavity is often completely filled with these spongy masses. Microscopically, the different forms of chronic endometritis are to be classified, according to their anatomical composition, as follows: glandular, when the

[1] See Schröder's "Krankheiten der weiblichen Geschlechtsorgane," Leipzig, 1884, 6te Aufl., S. 111.

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proper parenchyma of the mucous membrane, the glandular apparatus, is concerned; interstitial, when the stroma plays the chief rôle; and the mixed forms. Glandular endometritis is distinguished by a strong proliferation and multiplication of the epithelial cells. There are two varieties of this form; *viz.*, glandular hypertrophic endometritis, and glandular hyperplastic endometritis. In interstitial endometritis, the pathological changes are to be found in the proliferated stroma, so that, in the more recent cases, proliferation of the cellular constituents is more apparent. In the older cases, the framework, or the intra-cellular substance, exhibits the pathological alteration. In the mixed forms (endometritis diffusa), the inflammatory process affects all the parts, although not uniformly. Olshausen's chronic hyperplastic endometritis (endometritis fungosa), he regards as varied in its composition. The proliferation of the mucous membrane, which can here assume the greatest dimensions, is generally diffuse, but it may be an almost purely interstitial form, so that the glands are widely separated by the strongly proliferated stroma, at the same time becoming primarily and secondarily ectatic. In other cases, the affection is a purely glandular hypertrophy, no multiplication of the glandular ducts taking place, although great enlargement of the ducts has necessarily occurred *pari passu* with the proliferation. There may also be a true hyperplastic glandular endometritis, with an actual multiplication of the glandular ducts. The most important symptom of chronic endometritis is hæmorrhage, typical or atypical. In some forms, dysmenorrhœa occurs.

In another class of cases, the pain is absent during menstruation, but it appears in the middle of the free interval. Other women complain of a constant pain which undergoes exacerbation during menstruation. In still another class, women are free from pain during the flow, only to have it recur when the flow has ceased. Sensibility of the uterine mucous membrane to the contact of the sound is also characteristic of endometritis. Sterility is a frequent consequence of this affection. The effect on the nervous system is shown by a train of well-known symptoms, which it is not necessary to here enumerate.

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A priori considerations, derived from a study of the pathological anatomy, would naturally raise doubt as to the efficacy of vaginal and intra-uterine irrigation or of cauterization in effecting a restoration of the uterine mucous membrane to a healthy condition; and the experience of competent observers has fully shown how little reliance is to be placed on these methods. The indication of treatment is obviously to thoroughly remove the degenerated mucous membrane, so that this structure, forming anew, may remain normal under appropriate treatment. The curette enables us to satisfy this indication fully, especially when its use is followed by injections of iodine into the uterine cavity. Sims's curette is the form of instrument I have generally used, although, when the fungous growths were exceptionally soft, I have found that Thomas's wire-curette accomplished the purpose satisfactorily.

4. In those small, benign neoplasms of the mucous membrane of the body of the uterus, that are still confined in their growth to the uterine cavity, such as mucous and fibrinous polypi and adenoid growths. The application of Sims's curette, especially, can here effect the ablation of these small neoplasms with certainty. Dr. Emmet's curette-forceps can also be used advantageously in such cases.

5. In the secondary endometritis of areolar hyperplasia (chronic metritis), and in the endometritis complicating myoma uteri. The application of the curette in such conditions is a limited one. The procedure is especially dangerous in the case of myoma, as, in consequence of an interference with its nutrition, the myoma may suffer necrosis and undergo putrefactive decomposition, if infectious matters have been introduced into the uterine cavity. Thomas's wire-curette, however, in this latter form of endometritis, has afforded excellent results, in my hands, in a number of cases.

Finally, the curette is applicable for diagnostic purposes; and, when abnormal secretions and hæmorrhages indicate a morbid condition of the uterine mucous membrane, the curette is the most certain and the simplest means of making an exact diagnosis. Our second problem, as we have already seen, relates to

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the best method of performing the operation. The principles that should guide us in its performance are those that obtain in every other surgical procedure, and they may be summed up in the following apothegms: A careful preliminary preparation of the patient; a strict observance of antiseptic precautions carried out to the minutest details; a judicious after-treatment. In the practical application of these principles, the patient should be instructed to use vaginal douches of an antiseptic solution for some time previous to the performance of the operation. The time selected should preferably be soon after menstruation. The patient must be placed upon a suitable table, and, if she be nervous and lacking in courage, an anæsthetic should be employed. Whether she should lie on her back or be put in Sims's lateral semi-prone position, will depend on the convenience of the operator. The first is to be preferred when the uterine walls are thin and flabby and it is necessary to control the movements of the curette through the abdominal walls. The anterior lip of the os uteri is seized with a tenaculum, and, unless already sufficiently open, the cervical canal should be dilated by the introduction of steel sounds (or Hegar's hard-rubber dilators) passed in succession until the proper degree of dilatation is effected. Before and after the application of the curette, the uterine cavity should be thoroughly disinfected by an intrauterine injection of an antiseptic solution. Without the expenditure of much force, the curette scrapes the anterior wall, then the posterior, and afterward the lateral angles. By giving it the proper curve, it may easily be applied in each horn where the tubes pass off, and here especially we are likely, in chronic endometritis, to find fungous growths in excess. The diseased portions of the mucous membrane manifest themselves by their peculiar softness, as a rule. After the operation, the patient should keep her bed for four or five days. As regards the question of danger in the application of this procedure, Hegar and Kaltenbach[1] use the following language: "In a very great number of cases, we have never yet seen an injury from the use of the curette, and consider the procedure, applied in confor-

[1] "Die operative Gynäkologie," Stuttgart, 1881, 2te Aufl., S. 506.

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mity with proper indications, as one of the most satisfactory in operative gynæcology." "This method of treatment," remarks Schroeder,[1] "is free from danger if undertaken with painstaking observance of antiseptic precautions. Among many thousand applications of the curette and injections in simple chronic endometritis, I have, indeed, seen exacerbations of existing perimetritic inflammations ensue, but scarcely ever fresh inflammatory phenomena. One case of death from infection, to be sure, occurred before the time of antiseptics." In these views I heartily concur, my experience leading to like conclusions.[2]

[1] "Die Krankheiten der weiblichen Geschlechtsorgane," Leipzig, 1884, 6te Aufl., S. 124.

[2] In order to avoid all misunderstanding, it may be well to state that I regard as contra-indicating the application of the curette any recent inflammatory process in the vicinity of the uterus, such as perimetritis, parametritis, oöphoritis, or salpingitis. Retroflexion of the uterus, especially if complicated with perimetric adhesions, calls for great caution in the use of the instrument.

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ON THE MANAGEMENT OF BREECH-CASES IN WHICH BOTH EXTREMITIES ARE REFLECTED UPWARD PARALLEL TO THE BODY OF THE CHILD.

By William T. Lusk, M. D., of New York County.

Read November 19, 1884.

In the presentation of the following paper, I am well aware that I have no novel suggestions to make, and yet I feel sure that, to many practitioners, a more precise formulating of the indications for the employment of the resources of the obstetric art, in the difficulties which arise in that form of breech-presentation in which both extremities are reflected upward parallel to the body of the child, will be welcome and perhaps will contribute something to the diminution of infant-mortality.

In all forms of breech-presentations, it is the rule that the natural forces are capable of effecting the delivery of the child without assistance. When, however, in the interests of the mother or of the child, interference becomes necessary, all are familiar with the fact that, when the legs are flexed and both feet and breech present together, the bringing down of an extremity and the extraction of the child are accomplished by well-established procedures; while, in cases in which the extremities are parallel to the anterior surface of the fœtus, with the toes pointing over the shoulder, the operator is embarrassed by the absence of a natural handle by means of which extraction can be effected. It is precisely in the latter class of cases that nature oftenest fails to finish her work, and that obstet-

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ric aid is called for. Tarnier gives, as a reason for this, the fact that the extended extremities act as splints, which interfere with the lateral flexion of the trunk, and, consequently, with its accommodation to the curve of the utero-vaginal passage.

Theoretically, cephalic version by gentle manipulations through the abdominal walls, performed during the latter part of pregnancy or in the early stages of labor, most completely fulfills the required indication; *viz.*, the saving of the child with the least risk to the mother. That external version may be successfully accomplished, in cases in which the breech is not engaged in the pelvic cavity and the membranes are intact, has been shown by Mattei, Hegar, and Pinard, all warm partisans of the measure. Tarnier at first opposed the proposition of Mattei, on the ground of its impracticability and the risk of rupturing the membranes after the conversion of the breech-presentation into a shoulder-presentation; but more recently he has practiced the procedure in many cases successfully and without inconvenience to the mother or child.[1]

In obstetric practice outside of lying-in-hospitals, this method is not likely to come into common use. It presupposes great familiarity with the process of mapping out of the fœtus by abdominal palpation, a relatively considerable quantity of amniotic fluid, and the absence of excessive irritability of the uterine walls. Certainly, in the experience of most medical men, the diagnosis of the presentation is first made after the breech has descended below the pelvic brim; *i. e.*, at a time when cephalic version has ceased to be an elective operation.

Ahlfeld[2] has suggested that in primiparæ the hand be introduced immediately after the rupture of the membranes, or at least while its introduction is still practicable, and that the anterior extremity be brought down, as a prophylactic measure, leaving the child to be subsequently expelled by the natural forces. Zweifel, in his "Lehrbuch der operativen Geburtshülfe," makes the same recommendation; but Küstner, in com-

[1] Ollivier, "De la conduite à tenir dans la présentation de l'extrémité pelvienne, mode des fesses," Paris, 1883, p. 103.

[2] Ahlfeld, "Arch. für Gynaek.," Berlin, 1873, Bd. v, S. 174.

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mon with most authorities, objects on the ground that the manœuvres requisite to bring down a foot are liable to weaken the uterine contractions and to determine prolapse of the cord. In other words, in order to avert a remote danger, a near one, quite as serious in its nature, is invited.

When it becomes necessary to expedite delivery, in all cases in which it is possible to introduce the hand as far as the fundus of the uterus without imperiling the uterine structures, and when an extremity can be drawn into the vagina without resort to violence, such a method should, as a matter of course, be employed in preference to others; but in reality such cases are exceptional. Emergencies rarely arise before the breech has descended into the pelvic cavity. Most frequently, rupture of the membranes is followed by complete escape of the amniotic liquid and speedy retraction of the uterus upon the fœtus. The introduction of the hand and forearm over the anterior surface of the child up to the fundus then becomes a serious undertaking and may lead to uterine rupture. Traction upon the extremity seized is not always followed by its descent, or, when force is used, the descent may be accomplished at the expense of a fracture. To be sure, the manœuvre is supported by the very high authority of Dr. Robert Barnes. "The wedge formed by the extended legs and the upper part of the trunk must," he says, "in some instances at least, be decomposed before delivery can be effected." He recommends complete anæsthesia, support of the fundus, and gentleness in passing the breech at the brim, the finger being applied to the instep. "I have brought a live child into the world," he says again, "by this proceeding when forceps, hooks, and various other means had been tried for many hours." But Barnes does not conceal either the difficulties of the operation or the address requisite for its successful employment; and many other accoucheurs, less fortunate than he, have placed on record their failures to decompose the wedge in the manner advised. I should urge, therefore, the utmost caution in seeking the feet, and suggest that the operator abandon the attempt in all cases in which address fails and force is found necessary.

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At the time when intervention becomes necessary, if the breech be well engaged in the pelvis, the fœtus being of ordinary size and the resistance offered by the pelvic floor being inconsiderable, unquestionably, extraction may be effected by hooking the index-fingers respectively into the anterior and posterior groins. In very easy cases, the breech, when high up in the pelvis, may be made to descend by traction on the anterior groin. The direction of the tractions, as Madame La Chapelle long ago insisted, should, at the brim, be downward and backward; in the cavity, directly downward; and, at the outlet, downward and forward. It is, however, hardly necessary, in the presence of a body of experienced practitioners such as I address to-day, to note how often, in primiparous women, this manœuvre utterly fails at the critical moment. In such an event, Braun von Fernwald[1] recommends the method of Boër, which consists in passing a single hand over the sacrum and seizing the pelvis with the thumb in one groin and the index-finger in the other.

Many, and perhaps most writers insist upon manual methods of extraction to the exclusion of all others. My own experience is favorable to the use of instrumental aids as additional resources, when the hand alone proves inadequate to accomplish the desired object. At the risk of exciting adverse criticism, I do not hesitate to advocate, in cases of need, the forceps, the fillet, the blunt hook, and, when the child is dead, the cephalotribe, and I recommend them in the order I have given.

I know that the right of the forceps to the place of honor in the foregoing list is not likely to pass unchallenged. Some months ago, a former pupil wrote me from the West, that a medical man in his vicinity had applied the forceps to the breech and had extracted the child alive. Both mother and child subsequently did perfectly well, but, during the exit of the breech, the perinæum was lacerated. A suit for malpractice was thereupon brought against the operator, and it was easy to array against him a formidable list of authorities who refer to the use of forceps in breech-cases in terms of the strongest reprobation.

[1] Braun von Fernwald, "Lehrbuch der gesammten Gynaekologie," Wien, 1881, S. 747.

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The case was referred to me for arbitrament, and I had no hesitation in recommending a dismissal of the proceedings.

The chief objection urged against the forceps is to the effect that, by its construction, it is designed to seize the fœtal head only. As a consequence, therefore, when applied to the breech, to which its curves are not adapted, it does not grasp the presenting part securely and is liable to slip off when tractions are employed, thus endangering the maternal soft parts. If, in order to prevent slipping, the handles be firmly compressed, fracture of the thighs may result, the circulation in the cord may be accidentally arrested, or fatal injuries may be inflicted upon the fœtus by pressure of the points of the forceps against the abdominal viscera. To obviate these difficulties, Miles[1] has devised a pair of breech-forceps apparently well designed for seizing the pelvic extremity, and has given the histories of two cases in which they were successfully employed. As, however, a forceps of special construction is likely to be but rarely at the disposition of the physician when an emergency calls for action, it is not without interest to know how far the ordinary instrument is available in practice.

From the earliest period when the forceps was introduced to popular favor, there has been no lack of partisans for its employment as a tractor to the breech. Ollivier mentions among its earlier advocates, André Levret, in France, Roederer and Stein, in Germany, and Bertrandi, in Italy. More recently, Jacquemier declares it to be preferable to the blunt hook, and says: "It is inexact to state that it would crush the pelvic bones, and inevitably kill the fœtus by bruising and lacerating the abdominal viscera. . . ." In his now famous article on the forceps, published in 1872, in the "Dictionnaire de médecine et de chirurgie," Tarnier stated that, under exceptional circumstances, neither Stoltz nor Dubois feared to apply that instrument to the breech, and added that he had several times imitated their practice with success as regarded the mother and sometimes, also, the child. When the fœtus was dead, he

[1] Miles, "The Forceps in Difficult Breech Presentations," "American Journal of Obstetrics," New York, 1879, vol. xii, p. 135.

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made an autopsy with care and assured himself that the forceps had produced no lesion, either of the pelvis or of the abdominal viscera. Hüter, in his excellent treatise on Obstetrical Operations (Leipsic, 1874), declares that no better instrument exists, for the extraction of the breech, than the forceps. Dr. Henry Fruitnight, of New York, published in the July number of the "Virginia Medical Monthly," 1877, a successful case in which the forceps was used at the suggestion of Dr. E. C. Harwood. In the same year, Dr. Agnew reported two successful cases to the London Obstetrical Society. Dr. I. E. Taylor informs me that he has applied the forceps to the breech six times with success.

In 1877, Haake [1] published five cases, in which, as he says, to the astonishment of the physicians present, the extraction with the forceps was easily and quickly ended without the slightest injury to the fœtus. Last year I saw, in consultation with Dr. F. A. Castle, a case of breech-presentation in a primipara who had passed her thirtieth year. We both essayed extraction with the fingers, but in vain. The breech was in the pelvic cavity, but had not yet completed its descent through the cervix. The fœtus occupied an oblique diameter, with the back directed forward and to the left. In accordance with Haake's suggestion, I applied one blade of Simpson's forceps over the posterior surface of the thigh, and the other over the sacrum, with the extremity of the latter blade just above the crest of the ilium. In spite of the rigidity of the soft parts, the child was extracted alive in about fifteen minutes. The pressure-marks of the forceps were inconsiderable. Dr. Harvey, Professor of Midwifery in the Medical College of Bengal, in an essay just received, reports six cases; in three out of six the success was complete, in one the forceps was without avail, while in the other two the instrument did not slip until it had brought down the breech so as to allow him in one case to get his fingers over the groin, and in the other to apply the fillet, which he had before attempted unsuccessfully. Dr. W. H. Van

[1] Haake, "Ueber den Gebrauch der Kopfzange zur Extraction des Steisses," "Arch. für Gynaek," Berlin, 1877, Bd. xi, S. 558.

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Wyck, of New York, reports to me by letter two cases in which, in the years 1865 and 1867, he extracted the children by the breech with the forceps. Both children were born living.

Since the invention by Tarnier of axis-traction, however, a new impetus has been given to the method advocated. With axis-traction, not only is the resistance offered by the pelvic canal diminished, but, as Pinard states, the pressure is regulated and is not increased by traction. The fœtal portion is therefore seized solidly and with the least risk of harm. Ollivier reports successes with Tarnier's latest model, in his own practice and in that of Budin, Thomas, Berthaut, Lobat, and Cayla. Thus it will be seen that the weight of experience is favorable to the use of the forceps as a breech-tractor, while the objections are for the most part theoretical. As regards the rules governing the application of the forceps to the breech, it should be stated that the instrument is inadmissible so long as the breech does not engage in the pelvis. Haake limited its employment to cases in which the breech was already in the pelvic outlet, and after complete rotation had taken place. The history I have related shows that this rule is not inflexible even with the ordinary forceps. With the axis-traction forceps, the indication is certainly extended, as a rule, to all cases in which the breech has passed below the pelvic brim and the dilatation of the os is well advanced. If rotation have taken place, the blades should be applied over the sacrum and the posterior surface of the thigh, as recommended by Haake. If the hips occupy a transverse diameter, the blades should be applied to the lateral surfaces of the thighs, as suggested by Ollivier. The application of the blades over the trochanters, with the extremities overlapping the crests of the ilia, is to be deprecated, as the ilia are compressible and allow the forceps to slip (Ollivier). The extraction of the child should not be made an exhibition of strength; and the rigidity of the maternal structures is rarely to be overcome by any justifiable degree of force. The slow descent of the breech, effected by intermittent tractions, insures the physiological softening of the tissues in advance of the presenting part. In this respect, the rule is the same as in head-presen-

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tations. As the genital canal softens and relaxes, but little force is required to effect the birth of the breech. The tractions are most effective if made during the pains. If possible, they should be aided by simultaneous pressure, exerted by an assistant, upon the fundus of the uterus. If these rules be observed,

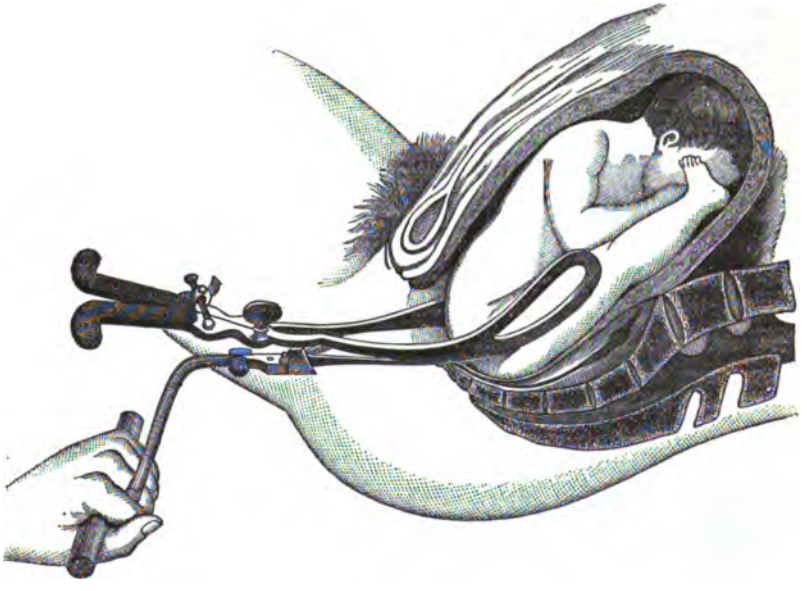

FIG. 1.—TARNIER'S FORCEPS APPLIED TO THE THIGHS. (Ollivier.)

the efforts to extract the breech will, in a large number of cases, I am sure, be crowned with success. If they fail, at least no injury to either mother or child is likely to result from the trial.

If the forceps fail, or if, owing to the non-engagement of the breech, its use be contra-indicated, and if an extremity can not be brought down without the employment of force, a resort to the fillet is admissible. The theoretical objections to its use are the following: 1. The fillet is apt to become twisted, and, when moistened with the vaginal secretions, it forms an uneven band, which, even with care, is capable of cutting deeply into

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the tissues. 2. In some cases it causes partial extension of the extremity, and, as a consequence, slips forward upon the thigh, when a fracture of the thigh-bone becomes inevitable. The reports from the Lying-in Institution of Munich, where, owing to the advocacy of Hecker, the fillet has been assiduously tested, do not confirm these gloomy prognostications. Thus, in the last report of von Weckberger-Sternefeld, the records of thirty-one cases are given (twenty-one of primiparæ, nine of pluriparæ, and

FIG. 2.—THE FILLET IN DORSO-ANTERIOR POSITIONS. (Ollivier.)

one not stated). The mothers all did well. One of the children was in a macerated condition when the fillet was employed. Of the remaining thirty, twenty-four were born living. Of these, eight were partially asphyxiated, but seven were revived. In no one of the children born dead was the result in any way attributable to the means of extraction employed. Twenty-three of the children left the Institution in a healthy condition. In four cases, deep pressure-marks, but without excoriation, resulted from the fillet. In the others, either no traces of pressure

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were found or they were of an insignificant nature. In all, the marks disappeared in a few days. In one instance only, fracture of the thigh occurred; and, in this, the back of the child was turned to the right and to the rear. Ollivier has shown that in the dorso-posterior positions special caution is demanded when traction is made at the groin. A glance at the accompanying diagram will show that it is not easy, in these cases, to direct the

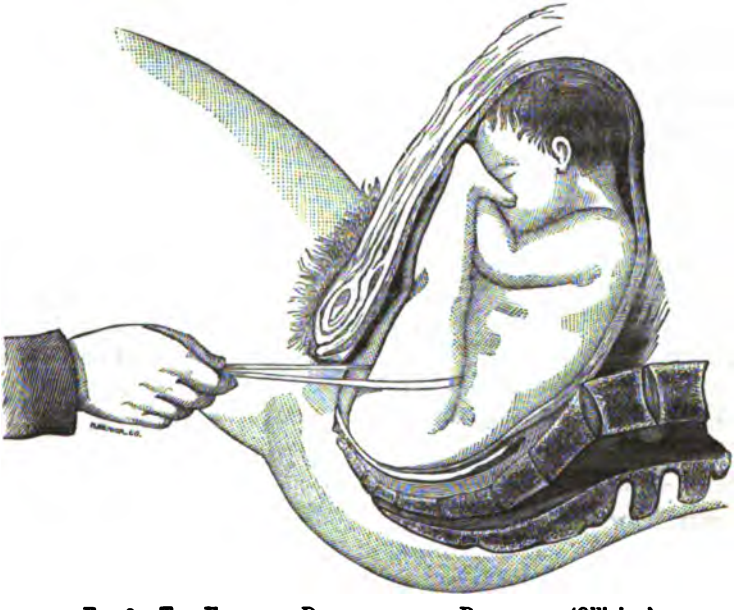

FIG. 8.—THE FILLET IN DORSO-POSTERIOR POSITIONS. (Ollivier.)

tractions in such a way as to avoid partial extension of the limb and a transfer of the pressure to the thigh-bone. In a series of experiments in which a dead fœtus was dragged, by means of the fillet, through an artificial pelvis, Ollivier found that it was possible, in dorso-posterior positions, to prevent the extension of the thigh, by passing the hand behind the breech and pressing forward during the tractions. He suggests, therefore, that in actual labor this danger may be avoided by exerting a similar

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pressure forward by means of the fingers of one hand inserted into the rectum. It is hardly necessary to add that, when the fillet is used, it should be passed over the anterior thigh, that only moderate tractions should be employed, that these are most effective when made during the pains, and that very great aid can be secured by conjoint pressure upon the opposite pole of the fœtus, exerted by a skilled assistant during the tractions.

The main drawback to the popularizing of the fillet is the fact that its passage around the groin by the finger alone is by no means easy in the very class of cases in which it is principally indicated; *viz.*, those in which the breech is high up in the pelvis and difficult of access. To be sure, with patience, the knotted end of a handkerchief can sometimes be pushed around the flexure of the thigh, or, failing in this, an elastic catheter with an attached loop may be guided by a finger in the groin between the thighs, to serve as a means of conducting the fillet into position. Because of the difficulties, however, attendant upon both of these plans, many porte-fillets have been devised. The one I now exhibit, which is a modification by Ollivier of an instrument invented by Tarnier for carrying a cord around the neck of the child in neglected shoulder-presentations, is an ingenious device. It consists of a long-handled blunt hook, tunneled in the center, and terminating in an olive-shaped bulb. The central canal permits the passage of a long piece of whalebone, the extremity of which is provided with a metallic eye to which a loop can be attached. When the whalebone is withdrawn, the eye occupies a hollow space in the olive-shaped extremity of the blunt hook. Below the handle, the end of the whalebone is supplied with a button to prevent it from being accidentally withdrawn into the canal. A screw above the handle serves to fix the whalebone at whatever point may be deemed desirable. The blunt hook is adjusted by passing it upward along the surface of the child, directed to the front to a point above the pelvis, and then directing the curve so as to adjust it to the groin. The whalebone is then easily pushed forward until it is felt by the finger of the operator between the thighs of the fœtus. The metallic eye is next directed outside of the vulva by the

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fingers, and the attached fillet is easily withdrawn by reversing the process described.

The fillet employed may be of any material. Every care should be taken to adjust it without forming folds or creases. In emergencies, the nearest object has to serve the purpose. Ollivier recommends passing a lacing through a piece of rubber tubing of the size of the little finger. The lacing should be sewed to the extremities of the tube, a projecting portion serving to attach the tube to the eye at the end of the whalebone of the porte-fillet. The rubber tubing in his experiments admirably answered the purpose of protecting the tissues of the child from injurious pressure.

In the absence of other appliances, or in case failure should attend the measures already described, it is well to remember that the blunt hook owes its evil reputation, not so much to its inherent defects, as to lack of proper caution in its employment. It will not break the femur if it be adjusted in the groin. It will not produce serious contusions if the blunt end be carefully guarded by the finger. Injuries to the maternal organs can occur only when leverage-movements are made. The pressure of the curved portion upon the groin is not likely to produce serious lesions. Steady downward tractions, made with moderate force and with a hand in the vagina to guard the point of the instrument and to give warning of beginning extension of the thigh, will as a rule suffice to prevent the occurrence of serious accident.

Finally, it is proper to state that no instrument is capable of furnishing so secure a hold of the breech as the cephalotribe. If the child be dead, a fact rarely to be determined with positiveness except in cases in which the cord can be felt, the cephalotribe should be screwed tightly to the breech, and it may be trusted to act as a perfectly reliable tractor.

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WOMEN AS MIDWIVES.

By Thomas H. Manley, M. D., of New York County.

Read November 19, 1884.

Mr. President and Fellows of the New York State Medical Association: I have chosen for a theme a subject seldom discussed in medical assemblies, but one, nevertheless, of much interest and of the utmost importance; of importance no only to us as physicians and surgeons, but to the residents of this vast metropolis and State, nay, to the whole nation. Although its consideration by a society of medical men is somewhat novel, and the views which I entertain on the subject have been bitterly opposed by many eminent and able members of the profession, still I am persuaded that, when these views are properly explained and the object to be attained is better known, they will be supported in a friendly spirit.

I propose to discuss, Mr. President, the question of "Women as Midwives," and to place before you some facts of interest in connection with the subject, to show you, no matter how much one may disapprove of the proposition, that the time has come when we must provide mothers belonging to the poorer classes with intelligent, responsible, and trained midwives.

It may seem incredible, but it is true, that at the present time more than two thirds of the wives of working-men are delivered by attendants called midwives, women, the majority of whom are ignorant of the first principles of obstetrics. As a rule, however, they safely confine their patients.

I find, by inquiries made of the health-officers of Boston,

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Brooklyn, and Philadelphia, that more than one half of the confinements among the working-people in those cities are attended by the same class; and, in passing, it may be well to acknowledge that, although these female attendants have been ignorant and untrained, they have accomplished much good, even if they have now and then lost a life.

The fact that so many thousands have been and are annually delivered by midwives would seem to imply that they are needed. Any one who has examined into the matter will see that the number of such deliveries is rather increasing than diminishing.

From all the information I can gather from different sources, from my own observation, and from that of others, I think I may assert, without fear of contradiction, that there is an urgent and imperative demand for trained midwives; and that, properly educated in their craft, they are, as a rule, in normal confinements, to be depended on to bring the parturient woman safely through her travail. It would seem rather paradoxical, but it is true, nevertheless, that the artificial means often resorted to to shorten labor and save life, as exemplified in the application of the forceps and the administration of ergot, have unquestionably been only too often the agencies through which fœtal life has been destroyed, and the mother's parts bruised, mutilated, and torn, leaving a large number of these unfortunate subjects for the table of the gynæcologist.

Professor Gross, in presenting his last essay to his professional brethren at the recent meeting of the American Medical Association in Washington, warned them against too frequent meddling with natural labor, and charged that the forceps is largely responsible for the torn cervix and perinæum. Several took exceptions to these utterances coming from a surgeon; but at a meeting at the Academy of Medicine in this city, lately held, its president, a widely known obstetrician and gynæcologist, asserted that the most distinguished gynæcologist of the present day might feel proud of having written Dr. Gross's paper.

I make this digression simply to prove that many women would do better in labor if their attendants would leave more

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to nature; in other words, if they would or could take more time.

The small fee usually paid to the general practitioner is often inadequate; and his reliance on the use of ergot and the application of the forceps is due to his desire to terminate labor hastily. The majority of child-bearing women are among the poor, many of whom are unable to pay anything to the physician. This condition of things being well known to us, how shall it be remedied? The problem to my mind seems easily solved. Qualify midwives to attend those who desire their services. Let those with means secure a physician. Select midwives from the multitude of our intelligent and vigorous young women, many of whom are well educated but have no opportunity of applying their education. The demand for young women of fair and advanced education, although yearly enlarging, is altogether too limited. Open a school for midwives, which in its organization and management shall deserve the approval of the medical profession and the State; and throw open the doors of the maternity hospitals, so that female students may be taught practical midwifery.

There are many confinements in this city which might be, and are not utilized for teaching; and this is the fault of medical men. Not only are our lying-in hospitals closed to female students of obstetrics, but young medical graduates are turned out on the world with nothing more than a merely theoretical knowledge of this important branch of medical science, not having been permitted, while students, to deliver women in our public institutions.

Not long ago, I heard a young obstetrician proclaim, at a meeting of the County Medical Society, that there were in this city fifty young doctors who would attend gratuitously all the cases of obstetrics they could obtain. I must take emphatic exception to that statement. If the speaker had said there were that number of medical students who would give their services and attendance, it would have been nearer to reason and truth; for, as a rule, no matter what may be said to the contrary, the vast majority of medical graduates immediately depend on what

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their professional labors will yield them, and they are not ready to give without compensation the benefits of a knowledge which they have acquired at considerable cost. If women are not successful as physicians—and for social and physiological reasons they are not—they are certainly well calculated to act as midwives. From time immemorial, they delivered their sex, long before obstetrics was recognized or known as an art; and even in this city, in the early part of the present century, there was only one physician who attended cases of labor.

It is hardly necessary to dwell on the need of providing the public with a corps of well-trained midwives. Thousands are annually brought to bed by their own sex; many through choice, more through necessity. Among the German peasantry, comparatively few are delivered by physicians. It has generally been the custom to deride and revile the "old midwife" if she has met with bad luck. This is not argument, however, and in spite of it she has survived, deserving rather the physician's respect than his contempt. Many are hostile to the education of women as midwives. Some assert that a person should be thoroughly well informed in the science and art of medicine before beginning this line of practice. Others fear that it will cripple the young physician, and that it will reduce his income by interfering with his resources. Others apprehend that midwives will be meddlesome.

A normal labor is not a surgical operation, there not being any deviation from health in its natural progress; medicine or medical aid is not called for to terminate it; and it is a purely physiological act. Many look upon its advent with horror and dismay, and these unfortunate women, the victims of the vicious and demoralizing tendencies of our times, view it as a calamity rather than a blessing. If it were not for some overt act on the part of the mother or meddlesome interference of the attendant, it would rarely be accompanied with danger. To demonstrate the accuracy of this statement, I have only to refer you to the general simplicity and safety of the parturient process among uncivilized races. The objection to the attendance of midwives, that it will reduce the physicians' revenue, is more imaginary

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than real. The classes which will depend on midwives are not generally such as are able to fairly remunerate a physician for his services. A physician, however, will always be indispensable in the management of serious cases.

This question under consideration is of immense interest to other than medical men; and its solution lies in that which will do the greatest good to the greatest number. The selfish disposition which sometimes asserts itself in the medical profession has done much harm; and hence medical legislation is looked upon with suspicion in popular assemblies. I need only to remind you of the fate of the bill lately before the English Parliament, and the manner in which a medical bill was crushed a few years ago in Massachusetts.

The last objection is that midwives will interfere with the medical attendants. This is an objection entertained against many trained nurses: that they know just enough to make themselves mischievous. However, this does not disprove the fact that trained nurses are useful and indispensable in the sick-room. We should not condemn pharmacists, because a large number of them are daily prescribing over the counter for every phase of disease; we need women to attend confinements; and any one who denies this is either biased by prejudice or ignorant of facts.

Admitting that the small fee generally paid does not properly remunerate the medical attendant, that the injudicious resort to the use of ergot or to the application of the forceps to hasten and terminate labor is often attributable to his desire to shorten labor, and that a majority of child-bearing women are among the poor, many of whom are absolutely unable to pay anything whatever—what is the proper remedy? Midwives are urgently needed to-day. Midwifery is an occupation in which women may earn a fair compensation for their attendance, and it is an entirely legitimate pursuit.

How shall women be trained in the art of midwifery so that they may do justice to themselves and to those whom they attend? What shall be the kind and the extent of such training? It is, perhaps, quite needless to remind many of you that a place was

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opened in this city two years ago in which women were taught the rudiments of obstetrics. It had an auspicious opening, and was conducted by medical gentlemen well known to the public and profession as men of character and ability. Its aims were encouraged and it was favorably noticed by the medical press of the city. But those in control committed a fatal blunder by resorting to disreputable methods, with a view of securing pupils, and brought down on it the unanimous condemnation of the medical profession. As a natural consequence, this violent and uncompromising hostility has had the effect of destroying that which, if honorably conducted, might have been of immense value.

No one, knowing the demand for educated midwives, should allow his prejudices to warp his judgment or influence his actions. The question really at issue in the matter is not, Do the people need them?—that has been answered by the health-authorities of our largest cities—but, as physicians guided rather by humane intentions than selfish motives, How shall we devise means by which a sufficient number of trained midwives may be properly educated, both theoretically and practically?

Is it feasible to make provision for giving women a practical training in a city maternity? There is nothing difficult or impossible in the way of securing this end, although, like every new undertaking in medicine, this will encounter opposition which will, however, be readily overcome, for, if worthy of public support and professional recognition, the effort will be sustained. No city possesses greater facilities than New York to supply the necessary material, and no city is more convenient of access for those living in other States.

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ADDRESS ON MEDICINE.—MEDICINAL AND NON-MEDICINAL THERAPEUTICS.

By Austin Flint, M. D., of New York County.

November 20, 1884.

In order that the scope of my remarks may be apprehended at the outset, it is necessary to define the terms embraced in the title of this address.

The term therapeutics may denote only the employment of medicines; that is, drugs. This is a limited sense of the term. In a broader sense, it comprehends the treatment of diseases, not by medicines alone, but any means or appliances. The latter is the more correct definition according to the etymology of the term (*θεραπεύω*), and in this sense I shall now use it.

The term medicinal, as I shall use it, is restricted to the employment of drugs.

The title which I have chosen might be otherwise expressed as, remarks on the treatment of diseases with and without drugs.

From time immemorial it has been considered to be the chief office of the physician to prescribe drugs and to regulate their employment. Not entering at all into the past history of medicine, let me ask, What is the prevailing popular sentiment at the present time, in all countries, respecting the part which medicinal therapeutics play in medical practice? Is it not that the practice of medicine without the use of drugs would be like the play of "Hamlet" with the part of Hamlet omitted? How many patients at this day would be satisfied to be treated for an illness, without drugs?

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Several years ago, my friend, Professor Alfred Stillé, visited with me my wards at Bellevue Hospital. I pointed out a patient who had recovered from pneumonia, the disease having passed through its course in the most favorable manner. As we were leaving the patient he exclaimed, in a tone of much irritation, "No thanks for my getting well; I have not had a particle of medicine since I came into the hospital." The case had been left to nature, and nature had effected the recovery as quickly and as completely as possible; yet the patient was much aggrieved and felt that he had been neglected. Now, had he been treated with perturbatory medicinal agents, which might have induced ailments in addition to those incident to the disease, perhaps prolonging the duration of his illness and rendering his convalescence tedious, doubtless he would have been satisfied, and possibly would have felt grateful to his physician. Have not many of those whom I now address met with analogous instances in which patients, having been subjected to little or no medication, have manifested after recovery no sense of obligation for medical services? Some may even have reproached themselves for having incurred the unnecessary expense of medical attendance and may perhaps have declined to make an adequate pecuniary compensation. Professional visits not supplemented by requisitions on the apothecary are deemed by many to be valueless. The worth of medical attendance is measured, in the minds of not a few, by the number of drugs prescribed. How generally, after a consultation, is it asked, "What new remedies are to be given?" and how often a feeling of disappointment, if the consulting physician have simply concurred in the propriety of the remedies already in use, leads to the reflection that a consultation might just as well have not taken place.

The twofold sense of the term medicine is significant. In one sense of the term, medicine denotes "a science, the object of which is the cure of diseases and the promotion of health." In another and the more popular sense, the term denotes a medicinal agent or a drug. The same is true of the term physic. Up to a late period, this term was used in a sense synonymous

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with the term medicine as the name of a science. Popularly the term physic means a drug, and especially a purgative drug. These facts are cited to show that, outside of the medical profession, the practice of medicine and medicinal therapeutics are regarded as about one and the same thing.

It is a general impression with those who are not of the medical profession that eminence in this profession is based chiefly on superior attainments in medicinal therapeutics. The fact that one may be an accomplished anatomist, an erudite physiologist, a profound pathologist, and a distinguished diagnostician, irrespective of extraordinary knowledge or skill in the medicinal treatment of diseases, is not appreciated. In this point of view, the science of medicine in the popular mind is identified with the employment of drugs.

It is needless to argue before this audience that a physician is not to be regarded purely as a prescriber of drugs; that the terms medicine and physic may have a broader and higher sense than that which limits their application to the materia medica; and that true eminence in the profession is by no means derived exclusively from medicinal therapeutics. I need not say that to withhold drugs in the treatment of cases of disease is as important an exercise of professional judgment as to employ them. In view of the prevailing popular errors just referred to, it is often more politic for the medical practitioner to employ than to withhold drugs. By withholding drugs, he may not only disappoint the expectations of his patients or of their friends, but he incurs a risk of having his disuse of drugs attributed to want either of knowledge of the disease or of interest in the case, and thereby to a withdrawal of confidence. The prevalence of these errors places the practitioner in a false position. Nothing is easier than to prescribe drugs. On the other hand, to refrain from their use may require, in addition to knowledge and judgment, not a little firmness and independence. An ignorant or a weak practitioner, therefore, may be tempted to pursue a medicinal treatment in opposition to his judgment or in order to cover up his lack of knowledge. Herein the popular errors may interfere with the usefulness of medical practice. More-

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over, these errors do injustice to the science of medicine as well as to the medical profession.

The time will come when the physician will not be regarded as merely a therapeutist, but as a medical counselor, whose functions embrace the preservation of health and the prevention, not less than the treatment, of diseases. Patients will then congratulate themselves, and be congratulated by their friends, whenever it is decided by the physician that potential drugs are not called for; but, it should be added, drugs will then never be withheld if, in the judgment of the physician, they are indicated. This reformation, if I may so call it, is to be brought about by a change in popular ideas respecting the practice of medicine. Let the public understand that drugs are not to be employed as a matter of course, whenever a physician is consulted or is in attendance. Let *placebos* be seldom, if ever, required for a moral effect. Let it be understood that, as modern clinical studies have demonstrated, many diseases end in recovery, from intrinsic tendency and self-limitation. Let it be popularly known that most medicinal agents are curative, not directly, but indirectly, by the removal of obstacles in the way of recovery; that nature is always the efficient curative agent, and, therefore, that the physician is nature's servant, not her master. Let the value of medical science, in the palliation of suffering and the promotion of the toleration of diseases which do not admit of recovery, be fairly appreciated. When these desirable objects are accomplished, the medical profession will hold a position in public estimation higher, even, than it now holds; a more elevated standard of medical education will become a necessity; and the usefulness of the profession will be increased. Moreover, this reformation will prove the most efficient of the means for the protection of the public against irregular and illegitimate systems of medical practice, and, as may be added, against the unworthiness of those who profess to be regular, or legitimate practitioners. The most popular of the systems opposed to legitimate medicine and the regular profession at the present time is based on the assumption that diseases are controlled by drugs, according little or nothing to a natural tend-

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ency to recovery. Correct popular ideas of medicinal and non-medicinal therapeutics are incompatible with confidence in this or in any system of practice, which assumes that recovery from diseases is always due wholly to medicinal agencies. Let correct ideas prevail, and there will be fewer instances than now, within the ranks of the profession, of unworthy means to secure a local reputation and to enhance the sense of obligation for professional services. In other and plainer language, there will be less of quackery within, as well as without, the medical profession.

As preliminary to the reformation in popular ideas to which I have alluded, there must be more unanimity than now exists in the medical profession respecting medicinal therapeutics. There is considerable diversity among physicians with respect to their estimation of the importance of drugs, and a corresponding diversity in practice. There are practitioners who, in this regard, exemplify opposite extremes. Some practitioners have an excessive and unwarrantable faith in drugs; others are excessively and unwarrantably skeptical. Any physician who has a considerable number of acquaintances among his fellow-practitioners will readily recognize examples of each of these extremes. Pharmacomania is a form of mental aberration affecting alike certain physicians and patients. The latter have a morbid craving for, and the former an abnormal propensity to prescribe, drugs. If it so happen that a pharmacomaniacal patient be under the care of a practitioner to whom that name applies, there may be mutual satisfaction; but, if not so mated, there is likely to be dissatisfaction on both sides.

The pharmacomaniacal practitioner never tires in the use of remedies. He has a distinct drug for every symptom, and remedies are multiplied in proportion as new symptoms appear. One may know that a practitioner belongs to this extreme class, by a glance at the array of phials, cups, and glasses at the bedside of the patient. The prescriptions, which accumulate daily, contain a multiplicity of ingredients, each, perhaps, designed for a particular object; or, to borrow a well-known comparison, they are like a heavily loaded shotgun, intended to do execution, although discharged without much regard to aim. His patients

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after recovery have a large collection of souvenirs consisting of the daily surplus of prescribed remedies. To the apothecary he is a "joy for ever." A catalogue of the medicaments presented by the apothecary as a memento shows that Molière did not exaggerate in the enumeration with which he opens his play, "*Le malade imaginaire.*" The pharmacomaniacal practitioner is never discouraged in the use of new remedies. He reads medical treatises and journals with special reference to these, and he loses no time in giving his patients the benefit of all in succession. As one new remedy after another becomes obsolete in consequence of having been found useless or injurious, he relinquishes it only to supply its place with one still more recent, always adopting the latest with as much avidity as he had accepted the remedies which he has discarded.

The practitioners who exemplify the opposite extreme, the skeptic, or, as may be said, the disbeliever, need not be delineated, inasmuch as the picture would be precisely the reverse of the one just presented.

Truth, of course, lies somewhere between these extremes; and between the truth and the extremes are different gradations. Here, as in other instances, "*in medio tutissimus ibis*" is the conservative maxim. The practitioner who holds a just medium between the two extremes has sufficient confidence in medicinal agents, but, recognizing that, in proportion to their potency they do either good or harm, he must be satisfied that they are clearly indicated before he employs them. He will not prescribe potential drugs at a venture, but only for a clearly defined purpose. He shoots after having taken deliberate aim; and he shoots with the rifle instead of with the shotgun. He requires competent testimony, based on trustworthy experience, before subjecting patients to the trial of new remedies. Fully alive to the progress of knowledge in medicinal therapeutics, he holds fast to what is actually known, and he adopts what is new, on satisfactory evidence afforded by his own experience added to that of others. He may make original observations in order to enlarge the boundaries of therapeutical knowledge, but his observations are made with due precautions, not overlooking his responsibil-

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ity for the welfare of his patients. His observations have for their sole object the discovery of truth for a beneficent end. He is conservative, but his conservatism is not fogyism. He cultivates and practices medicine as a science, but he never forgets that medicine is a science of which the pervading principle is humanity.

A fact not to be lost sight of is that the only reliable basis of therapeutical knowledge is clinical experience. It is not sufficient to conjecture from the properties of drugs as to what they ought, reasoning *a priori*, to effect. It may take a long time for clinical experience to overthrow fallacious conclusions reached by such a method of reasoning. The results of experiments on lower animals must be accepted with caution. It is true that clinical experience is beset with difficulties which exemplify the Hippocratic axiom, "*experientia fallax.*" The "*post hoc, propter hoc*" errors are often enough alluded to; nevertheless, they abound in the practice of medicine. How often can we be assured, when notable improvement has attended a certain measure of treatment, that the same improvement would not have followed the employment of a different measure, or would have occurred if nothing had been done therapeutically! Great as are the difficulties in the way of determining the precise therapeutical value of drugs, clinical experience is the only tribunal from which there is no appeal.

It is a striking fact that our knowledge of those medicinal agents which are acknowledged to have the most special therapeutical value, until lately rested wholly on an empirical basis; that is, their *modus operandi* was entirely unknown. This is true of cinchona and other antiperiodic drugs, mercury and iodine in syphilis, and chalybeates, prior to our present knowledge of anæmia. At the present time, it can be said that the therapeutical value of cinchona, mercury, and iodine probably depends on their efficacy as parasiticides. This explanation came long after the discovery of the therapeutical value of these drugs. It is not easy to name drugs of equal therapeutical value, to the knowledge of which *a priori* reasoning led the way. Yet, although clinical experience is the only basis of our actual knowledge, analogi-

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cal and speculative reasoning may, with propriety, precede the appeal to that tribunal. The explanation of the *modus operandi* of the remedies just named, together with the recent most important developments in ætiology, has given a direction to therapeutical observations which may lead to an immense advance in our knowledge of medicinal therapeutics. I refer to discoveries with regard to the parasitic origin of certain infectious diseases. Let the doctrine be established, as may be expected, that all infectious diseases are parasitical, and let the class of infectious diseases be enlarged, as may also be expected, and the therapeutical problem will be to discover by clinical experience a parasiticide for each parasite. Let this be accomplished, and therapeutics will have undergone a revolution, the extent of which it is impossible to foresee. It is most inspiriting to think of the luster to be conferred on medicine, and of the boon to be given to humanity, by the ability to control all the essential fevers, together with septicæmia, epidemic cholera, influenza, pertussis, dysentery, and last, but first in relative rank as a life-destroyer, pulmonary phthisis. Never before could the medicine of the future have appeared more bright and encouraging than at the present outlook.

My reflections thus far have had reference to medicinal therapeutics. In the same desultory way I shall offer some remarks on non-medicinal therapeutics.

As a rule, medical practitioners who overestimate medicinal therapeutics underestimate, in an equal ratio, non-medicinal therapeutics. The pharmacomaniacal practitioner is not likely to give much heed to non-medicinal measures of treatment. So, also, the pharmacomaniacal patient is prone to disparage and neglect measures which are non-medicinal. He places his reliance solely on the materia medica. It is perhaps true that drugs, oftener than non-medicinal measures, are used to an injudicious extreme, and that generally the evils of the former are greater than those of the latter; nevertheless, errors in the treatment of diseases, irrespective of drugs, are by no means infrequent, and they may be productive of not a little harm. To

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some of these I shall advert. My remarks will relate to diet, to the use of alcohol, to "catching cold," and to mental influences exerted upon patients.

Alimentation is not less an essential factor in therapeutics, as applied to both acute and chronic diseases, than in the maintenance of health. Certain fundamental principles of dietetic therapeutics are to be kept in view. One of these is that there is never danger from over-nutrition in either acute or chronic diseases. Whatever risk there may be of harm from an over-ingestion of food, relates to the processes preliminary to assimilation and nutrition.

Another fundamental principle is that the immediate lethal agency, when diseases destroy life by slow asthenia or exhaustion, is chiefly innutrition. Graves acknowledged indebtedness for the suggestion of his plan of "feeding fevers" to a country doctor, who said that he seldom lost patients with fever, provided they were not allowed to die of starvation. Now, what is true of fevers as regards the importance of a sustaining diet is equally true of all diseases which kill by slow asthenia. Death is due to starvation; and it may be averted, if effective assimilation and nutrition be practicable. In all chronic diseases which admit of recovery, this termination is the more assured and expeditious, as a general statement, the better that nutrition is maintained. The tolerance of those diseases which do not admit of recovery and the prolongation of life is promoted in proportion as alimentation can be made conducive to nutrition.

It follows from these principles that, in cases of either an acute or a chronic disease, the question is not whether the patient be in danger of being over-nourished, but, on the contrary, whether alimentation be adequate to the capabilities of the processes relating to nutrition. Patients can not be overfed so long as the food taken is digested, assimilated, and appropriated by the tissues. As it is impossible always to exactly graduate the quantity of food to the digestive, assimilative, and nutritive powers, it is evident that the quantity must often either exceed or fall below the capabilities of the processes relat-

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ing to nutrition. Now, of the two evils, which is the lesser? I answer, an overplus of aliment, inasmuch as nature provides for a redundancy more readily than for a deficiency of alimentary supplies.

It is a sound maxim in medicine that the therapeutical indications derived from science and from nature, as a rule, should harmonize. If they be in conflict, the scientific indications are open to suspicion. I may add, as another maxim, that the true principles of therapeutics are in accordance with the dictates of common sense. If there be antagonism here, when the liabilities to error in scientific deductions are considered, it is reasonable to suspect the correctness of the latter. These maxims are applicable to dietetic treatment in diseases. Nature's indications as regards diet relate to appetite and the sense of taste. That appetite and taste were intended to govern the selection and the quantity of aliment in health, no one can doubt, especially if it be added that the indications derived therefrom are to be regulated, to a certain extent, by reason and experience. But it is a popular error to suppose that these natural indications are necessarily morbid in cases of disease, and that, instead of being recognized as constituting a governing principle, they are to be opposed. This popular error prevails to a certain extent in the medical profession. How often, perhaps I should say how common, is it that patients with different diseases are denied food when nature indicates the need of it by the sense of hunger! How common, when food is allowed, is it for patients to be denied the articles of food which they desire, and to be made to take articles which they dislike! I look upon this disregard of nature's indications in the same light as upon the exclusion of fresh air from the sick-room, against which Sydenham was the first to rebel, and upon those restrictions in the use of water internally and externally, which have not even now become obsolete. The dietetic regulations, in cases of disease, need reform to-day fully as much as reform has been heretofore needed with regard to air and water. It is an evidence that science is astray, whenever it opposes, instead of co-operates with, the indications of nature.

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There are, however, conditions of disease in which the instincts fail to express the needs of the system by means of appetite and taste, for the reason that the needs are not felt, owing to morbidly blunted perceptions. These conditions exist in the essential fevers, especially typhus and typhoid fever. Under these circumstances, the knowledge and judgment of the practitioner must, as far as practicable, take the place of nature's indications. Science must assume the control; whereas, under other circumstances, it should merely regulate the dietetic treatment under the governing influence of the instincts. The problem, then, is to satisfy the needs of nutrition as fully as possible, irrespective of any guidance by the instincts of the patient. Both reason and experience show how precious, under these circumstances, are the foods in which are combined, by the hand of nature, in due proportion, all the alimentary principles, as in milk and eggs. For these there are no substitutes. Supplementary thereto are the various farinaceous foods, and the animal foods other than those just named.

With regard to meats, a common error, both popular and professional, and one productive of a vast deal of harm, is to consider their nutritive value as fairly represented by either infusions or decoctions or by the juices obtained by pressure. The valuation, by most persons outside of the medical profession and by many within it, of beef-tea or its analogues, the various solutions, most of the extracts, and the expressed juice of meat, is a delusion and a snare which has led to the loss of many lives by starvation. The quantity of nutritive material in these preparations is insignificant or *nil;* and it is vastly important that they should be reckoned as of little or no value, except as conducive indirectly to nutrition, by acting as stimulants of the secretion of the digestive fluids or as vehicles for the introduction of nutritive substances. Furthermore, it is to be considered that water and pressure not only fail to secure the alimentary principles from meat, but the excrementitious principles, or the products of disassimilation, are thereby extracted; hence, not very inaptly, beef-tea has been compared to urine; and, a few years ago, a German experimenter, whose name I can not recall, declared

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that he produced fatal toxæmia in dogs by feeding them with this popular article of diet.

Meat liquefied and retaining all its alimentary principles is a great desideratum in dietetic therapeutics. The preparation known as Leube's Meat-Solution consists of flesh brought by artificial digestion to the condition of peptones. It is an equivalent of the solid flesh, and, therefore, it represents all the alimentary principles of meat. A late improvement in the preparation, by Rosenthal, has made it acceptable to the palate. This method of preparing meat in a liquid form should supersede most of the various preparations which are more or less in vogue. It is desirable that the merits of preparations made according to the methods of Leube and Rosenthal, not only of beef, but of the various kinds of meat, should be properly appreciated by physicians and patients.

Chewing meat and rejecting its nutritive constituents by expuition is a practice not less irrational, unscientific, and opposed to common sense, than disgusting. As a rule, if meat be craved and be agreeable to the palate, it is allowable; and it is a shame to tantalize nature's cravings with the shadow, withholding the substance.

In leaving the subject of diet, I may express the belief that not a few maladies, more especially those affecting the nervous system, often originate in, and are protracted by, insufficient alimentation. Evidence of the correctness of this belief is afforded by the successful treatment of certain nervous affections in women after the plan inaugurated by Weir Mitchell, in which alimentation is an essential factor. In place of the apothegm, "there is death in the pot," it might be more pertinently said, there is life in the pot, inasmuch as this utensil, if regarded as the symbol of aliment, represents health and vigor.

The question whether alcohol is a food has, within late years, given rise to much discussion and investigation. As I suppose, few, if any, now hold to the opinion that the sum total of alcohol ingested is eliminated from the body as alcohol, or deny that it supplies a material for the production of animal heat. It is,

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therefore, a food. All will admit that it may be made a potential agent for either good or harm. The use of alcohol as a therapeutical agent should have no connection with its use or abuse in health, except as regards proper precautions lest its use in illness may eventuate in an alcoholic habit after recovery. A physician may be a zealous advocate of total abstinence in health, but evidently his zeal should not lead him to withhold alcohol from his patients whenever benefit is to be derived from its employment as a therapeutical agent. It were, indeed, a cruel injustice to patients to deny them this benefit because a vast deal of misery and crime is attributable to alcoholic intemperance. The value of alcohol in therapeutics and the indications for it are to be determined precisely as in the instance of any other therapeutical agent. Opium, like alcohol, is capable of abuse in health; but who will say that it is thereby any the less worthy of the eulogium of Sydenham, who called it the *magnum donum Dei!*

In the medical practice of the last century, there have been notable oscillations in the use of alcohol as well as of other therapeutical agents. The doctrine of Brown, which, on purely theoretical grounds, led to its free use, was followed by that of Broussais, which stigmatized its use as incendiary, on grounds equally theoretical. Its free use came again into vogue about forty years ago. Todd was then its ardent advocate, and he was, perhaps, the first to emphasize its agency as a food. Its use for several years was doubtless too indiscriminate and was carried to an extreme. At the present time, there is considerable diversity of opinion and practice as regards its use, among medical practitioners, but the tendency of late years has been to employ it with more and more reserve. Where lies the truth between the extremes as regards the proper place of this agent in therapeutics? I shall not undertake to answer this question. It covers too much space to be considered on this occasion. I shall only remark that the oscillations in the past and the diversity in practice at the present time show conclusively the need of further investigation. This is one of the many questions in therapeutics which call for the analytical study of carefully recorded clinical experience.

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I have endeavored to do something in the way of this study with reference to phthisis and the continued fevers.[1] As a conclusion based on the analysis of a considerable number of recorded cases, I feel warranted in affirming that, in a certain proportion of the cases of phthisis, alcohol antagonizes the progress of that disease, and that in the treatment of the continued fevers (typhus and typhoid) it is a means of saving lives which without it would be lost. Reasoning by analogy, it is a logical conclusion that with similar indications it is an important therapeutical agent in the treatment of essential fevers other than those just mentioned, and also of diseases of which fever is symptomatic.

It is a theoretical error, which I suppose to be common, to regard the action of alcohol within the body as purely that of a stimulant. A cardiac stimulant it undoubtedly is, and this is one of the modes in which it is useful; but its prevention of the waste of tissues by acting as a substitute for their components in the production of animal heat is another rational *modus operandi*. And another, hitherto not so much considered as it probably will be under the guidance of pathological developments now in active progress, is its antiseptic property.

If alcohol be useful as a material for combustion within the body, it is indicated in the condition of fever prior to the indications for its employment to sustain the failing powers of life. The object, in this point of view, is to forestall these indications and to prevent the asthenia which gives rise to them.

It is yet to be ascertained in what diseases and to what extent alcohol may act as an antiseptic, or a parasiticide, or an antidote. It has been supposed to counteract the noxious effects of certain venoms. A similar claim has been made for it, on the

[1] *Vide* the following: "Clinical Report on Pulmonary Tuberculosis; giving an Account of Twenty-four Cases of Arrested Tuberculosis, etc.," "American Journal of the Medical Sciences," Philadelphia, January, 1858.—"On the Management of Pulmonary Tuberculosis, with special reference to the Employment of Alcoholic Stimulants," "Trans. of the N. Y. Acad. of Med.," New York, 1863.—Treatise on "Phthisis: its Morbid Anatomy, Ætiology, etc.," Philadelphia, 1875, p. 446.—"Clinical Reports on Continued Fevers, based on an Analysis of 164 Cases," Buffalo, 1852, p. 390.

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basis of experience, in the treatment of diphtheria. The conjecture is not unreasonable that in other fevers it may have a controlling influence by destroying, either directly or indirectly, the special causative agent, whether this be or be not a morbific organism. Here is a subject for clinical observations. It is evident that, employed with a view to test fairly its value as an antiseptic, or a parasiticide, or an antidote, in different diseases, it may be important that alcohol be employed early, continuously, and in a quantity as large as may be tolerated. In its employment for these purposes, as also for the support of the vital powers, the greatly increased tolerance of alcohol in different diseases and in different cases of the same disease, must be taken into account.

The phrase to "catch cold," so often in the mouths of physicians and patients, is a curious solecism. It implies not only that the term cold denotes something positive, but that this something is a living entity, a sort of demon in ætiology, which does not catch, but is caught by the unfortunate victims. The synonym *Erkältung* pervades German medical literature remarkably. There are few diseases in the nosology in the causation of which "catching cold" does not enter, according to German writers. At the present time, a question under discussion in Germany is whether pneumonic fever be attributable to "catching cold," and there appears to be an emancipation of the minds of some of the most distinguished of the physicians of that country from the traditional notion that this disease is the work of the ætiological evil spirit represented by the term "cold."

There is an indefinite latitude in the phrase to "catch a cold." It is used to denote an inflammation or a catarrh of the mucous membrane of the air-passages, but its application is extended to various affections in various situations. There is but little ground for its application to the ætiology of the so-called nasal, pharyngeal, laryngeal, and bronchial catarrh; but I shall confine my remarks to the supposed danger of "catching cold," as involved in therapeutics.

If most persons outside of the medical profession were to be

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asked what they considered as chiefly to be avoided in the management of the sick, the answer would probably be "catching cold." I suspect that this question would be answered in the same way by not a few physicians. Hence it is that sick-rooms are poorly ventilated, and patients are oppressed by a superabundance of garments and bed-clothes. The air which patients are made to breathe, having been already breathed and rebreathed, is loaded with pulmonary exhalations. Cutaneous emanations are allowed to remain in contact with the body, as well as to pervade the atmosphere. Free exposure of the body is deemed hazardous, and still more so, bathing or sponging, the entire surface of the body being exposed. Patients not confined to the bed, especially those affected with pulmonary disease, are overloaded with clothing, which becomes saturated with perspiration and is seldom changed for fear of the dreaded "cold."

These sketches are from life, and the observations of every medical practitioner furnish real illustrations. The supposed morbific agency of cold is a traditional error deeply rooted in the popular mind. It interferes often, in no small degree, with the satisfactory management of cases of disease. It is an obstacle in the way of securing for patients hygienic conditions, the importance of which may be greater than that of drugs. It is obstructive to the adoption, in cases of fever, of the antipyretic treatment, which is, perhaps, the most important of the improvements in modern therapeutics. How reluctant are physicians, on account of traditional ideas, to make trial of either the cold affusion of Currie, the cold bath, the wet sheet, or even sponging of the body, in cases of pneumonic fever, although testimony is ample of the safety and utility of these measures of treatment! Of those who are convinced of the safety and utility of these measures, how many hesitate to resort to them, lest, if the termination be fatal, the death might be attributed to a therapeutic innovation so opposed to popular prejudice!

A reform is greatly needed in respect to "catching cold." Let the demon be exorcised first from the medical, and next from the popular, mind! Let it be generally known and be-

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lieved that few diseases are referable to the agency of cold, and that even the affection commonly called "a cold" is generally caused by other agencies, or, perhaps, by a special agent which may prove to be a microbe! Let the axiom, "a fever patient never catches cold," be reiterated until it becomes a household-phrase! Let the restorative influence of cool, fresh, pure atmosphere be inculcated! Let it be understood that in therapeutics, as in hygiene, the single word, comfort, embodies the principles which should regulate coverings and clothing! Non-medicinal therapeutics will have gained much when this reform has been accomplished.

My concluding remarks will have reference to mental influences to be exerted on patients.

I have often thought that a consideration of the influences which the physician may exert, either for good or harm, on the minds of his patients, should hold an important place in therapeutics. Our text-books are silent on this subject, and I am not aware that much if any attention is given to it in oral teaching. It can not, however, be doubted that success in the management of cases of disease often depends largely on mental influences conjoined with other measures of treatment.

The mental constitution of some practitioners is unfortunate as regards the exercise of favorable influences on the minds of patients. As we all know, there are members of our profession, with no lack of ability or of educational requirements, who are irreproachable in character, whose manners are unobjectionable, and who are in all respects gentlemen, but who are not successful in medical practice. Something is lacking which is not always easy to define. There is a "screw loose" in the mental mechanism; the effect being an inability to inspire patients with confidence, faith, and hope, three potential elements in therapeutics. It is fortunate for the physician and for patients if this lack of constitutional fitness for the practice of medicine be discovered early, and if it lead to the adoption of some pursuit to which there is a better adaptation.

There are certain rules bearing on the influences to be ex-

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erted on the minds of patients which should be considered and adopted, although they may not accord with the natural temperament or disposition of the practitioner. Here, as in other instances, we find, in the practice of different physicians, two extremes which are widely apart. Here, too, is applicable the trite maxim, "*In medio tutissimus ibis.*" Let me endeavor to sketch an illustration of each extreme.

I have in my mind's eye the picture of a practitioner whose mental temperament is in a high degree sanguine and hopeful. It is difficult for him to look in any other direction than on the bright side of a case. His attention fastens on all the encouraging points. He instinctively exaggerates these and undervalues those which are discouraging. All the possibilities as regards a favorable progress and termination he believes will be made available for his patients. He is confident that his cases will prove, if need be, exceptions to general rules.

This is a rough outline of one extreme, an extreme of optimism. Practitioners who exemplify this extreme are liable to errors of prognosis. They lose patients when they had entertained and held out confident expectations of recovery. For this they may incur blame; but there is reason to believe that these expectations not infrequently contribute to recovery, and, as regards an influence on the issue of disease, they assuredly do not do harm to the patient.

A picture illustrative of the opposite extreme represents a practitioner who assumes the responsibility of a case, always anticipating the worst that can befall the patient. His solemn manner and melancholy mien inspire nothing but forebodings. His attention is intent on the discovery of bad prognostics. He shakes his head distrustfully at symptoms which appear to be favorable. His words of encouragement, if he venture upon them, are so qualified by his apprehensions as to give rise to fear rather than to hope. This is an outline of a medical pessimist. The errors of prognosis into which practitioners of this stamp fall are the opposite of those of the optimist. Patients recover who have been condemned to die. These errors are less likely to occasion blame than those which involve fallacious ex-

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pectations of recovery; but, it is to be added, a gloomy or fatal prognosis may contribute to its fulfillment.

It would require some presumption to draw a picture illustrative of a *juste milieu* between these extremes; and the little space which remains on this occasion precludes the attempt, even were I disposed to make it. I shall close with a few fundamental precepts pertaining to mental therapeutics, stated dogmatically and aphoristically, for the sake of brevity.

The practical object in mental therapeutics is to promote the favorable progress of diseases by means of influences exerted on the minds of patients.

The influences which may be exerted on the minds of patients are of sufficient importance to constitute a distinct branch of non-medicinal therapeutics.

Abnormal mental conditions, although the intellectual faculties may not be materially impaired, often lead to an exaggeration of symptoms, imaginary ailments, and undue apprehensions, which interfere with the favorable progress of diseases, by affecting appetite and digestion, by preventing sleep, by discouraging co-operative efforts for restoration to health, and by a general depressing effect upon the functions of the body. The methods for the removal of these obstacles in the way of the favorable progress of diseases are within the province of mental therapeutics.

Confidence, hopefulness, and courage are conducive to the favorable progress of diseases. To endeavor to secure and maintain these, is a duty incident to mental therapeutics.

Observation teaches that the strength of the mental faculties in health and the extent of attainments in any branches of knowledge are in no measure reliable criteria for judging of the mental condition of patients affected with disease. This assertion may be applied even to moral qualities and religious convictions. Disease is the great leveler, intellectually and morally, as well as physically. Men and women often become, on the sick-bed, in a mental and moral point of view, children, and they are to be managed as such. Shakespeare, as always, was true to nature when he compared to a sick girl the

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imperial Cæsar when suffering from a paroxysm of intermittent fever.

In contrast with the assertion just made, every physician of much experience has met with instances exemplifying the efficacy of determination and a strong will in resisting and overcoming disease. To recognize and to endeavor to fulfill nature's indications, as regards the potential influence for good which the mind can exert over the body, is a duty incident to mental therapeutics.

Instances are not infrequent of the efficacy of an intense belief in the curative power of certain measures, under circumstances which, to the superficial observer, appear to prove conclusively a special intervention of Providence. The so-called faith-cures, and those which follow the laying on of hands, or other procedures in themselves inoperative, except through the mind, are full of significance as regards the potential agency of measures pertaining to mental therapeutics. The history of Perkinism and the prevalence, now and heretofore, of other medical delusions, are most instructive and have, perhaps, not been sufficiently considered with respect to the lessons to be drawn therefrom and their practical applications to legitimate medicine.

The influence of mental activity, under an absorbing sense of duty, on the tolerance of diseases might be illustrated by many examples. Kane endured the hardships of a Polar expedition, with a diseased heart. General Gordon, who at this time holds a prominent place in the thoughts of all Christendom, is a sufferer from angina pectoris. To quote his own words, "I may say that I have died suddenly over a hundred times." The London "Lancet," referring to the subject, expresses the hope that he (General Gordon) may "long continue to show to the world what can be done by men with grave diseases, but with faith in their own mission and in God's providence." It is this faith which is a potential factor in the tolerance of disease. The other side of this picture shows a pitiful introspection exemplified in so many of our patients, which is as potential for harm, as the worthy aims which absorb the mental faculties are efficient for good.

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I do not doubt that many a life has been shortened by injudicious injunctions to rest from labors which, from their nature and long continuance, had become indispensable to health as well as happiness. The sanitary agency of work is too often overlooked. How wretched, often, is the remainder of life when, either in the delusive expectation of happiness or the equally delusive anticipation of improved health and length of days, activity is exchanged for idleness! Insanity and suicide are not infrequent consequences of this. The introduction into medical nomenclature of the term nervous asthenia, for which I am responsible, and that of the congeneric terms neurasthenia and nervous prostration, subsequently introduced, I am bound to say, have done harm, although they express veritable pathological conditions. These terms have done harm by expressing a condition which is often imaginary, and by leading to the evils resulting from physical and mental inactivity.[1]

The physician who appreciates the importance of mental therapeutics and of the duties incident thereto, will not fail to hold out to patients the encouraging features of a case. He will not give way to gratuitous forebodings. He will be circumspect in forming, and still more in announcing to his patients, an unfavorable prognosis. He will be slow to hazard a prediction as to the precise date when a disease will prove fatal; and still less will he be guilty of the brutality of imitating a judicial sentence of death. He will keep out of the view of his patients discouraging possibilities, but not those which warrant hope. He will strive judiciously and skillfully to bring to bear all the potential mental agencies of which he may properly avail himself. He will throw on the scale of hopefulness all the weight to be derived from those doubts and difficulties which beset diagnosis and prognosis. He will make due allowances for the limitations of medical knowledge and for his own deficiencies.

[1] The term "nervous asthenia" was introduced by me in the first edition of my treatise on the "Principles and Practice of Medicine," published in 1866. Afterward, the term "neurasthenia" was introduced by the late Dr. Beard. "Nervous prostration" is a popular term much used at the present time.

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I have alluded to some of the precepts which underlie mental therapeutics. A consideration of the various modes of exerting influences on the minds of patients would embrace manifold details. Many questions arise with regard to the course to be pursued under the varied circumstances incident to disease and to the diversities of human character. Some of these questions involve points in casuistry. The subject in its practical aspect has a wide scope, and I commend it to some one who may aspire to be the author of a work on the non-medicinal treatment of diseases, according a proper relative space to the influences to be exerted on the minds of patients, or, in other words, to mental therapeutics. Such a work is a desideratum in medical literature.

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FALSE ALBUMINURIA.

By Gaspar Griswold, M. D., of New York County.

Read November 20, 1884.

Under the title of false albuminuria, this paper will include two distinct classes of cases:

1. Cases in which the urine does not contain albumen, but in which a precipitate resembling albumen is caused by the ordinary tests.

2. Cases in which albumen is actually present in the urine, but does not come from the kidney.

The detection of slight degrees of albuminuria is often more important in practice than the determination of larger quantities; for the cases in which the albuminuria is so ill-defined as to be doubtful are those in which dropsy and other characteristic symptoms are least marked and in which we are most dependent upon urinary analysis in making a diagnosis. It is very easy to determine the existence of renal disease, when the urine contains albumen and casts in abundance and the patient presents the familiar dropsical appearance; but when there are no symptoms beyond a somewhat persistent headache with restlessness and occasional digestive disturbances, just enough to suggest the possibility of kidney-trouble, it becomes a very difficult problem to determine the importance of a faint trace of albumen in the urine. We ascertain the specific gravity and the quantity passed. Both are not far from normal. In such a case, we then examine carefully for casts, but very rarely find them, for, even if they be present, they are usually so few that

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it is a matter of remote chance to hit upon one. While the discovery of casts is conclusive evidence that the kidneys are affected, the failure to find them certainly can not be taken as proof that the kidneys are sound. This brings us face to face with the question whether, the urine being normal in all other respects, we may not have been mistaken about the trace of albumen. The patient may be suffering only from dyspepsia after all; and the slight precipitate which we obtained may not have been due to albumen, but to some error in testing the urine. Or may not some peptone, imperfectly elaborated in the course of the indigestion of which the patient complained, have passed into the urine and given us a precipitate resembling albumen? Or, even further, supposing the precipitate to be albumen, may not the small quantity which we observed have come from some irritation of the bladder or prostate?

It is obviously of the greatest importance, as regards both prognosis and therapeutics, to be able to decide whether a slight cloudiness or deposit which occurs in a specimen of urine when tested is really albumen, and, if so, whether the albumen come from the kidney or not. In discussing these questions, only the tests with heat and nitric acid will be referred to; but it will be assumed that, in all doubtful cases, scrupulously clean test-tubes are used, the urine filtered before testing, and the presence or not of a precipitate determined by looking through the urine at a black background in a good light. The accurate compliance with all these detailed requirements is absolutely essential, and no results are reliable in obtaining which they have been neglected.

The test spoken of in this paper as the "cold nitric-acid test" is performed as follows: Into a test-tube of small caliber is first poured one drachm of pure, colorless nitric acid. About one drachm of the suspected urine is then allowed to flow down the side of the tube, drop by drop, from a pipette, so as to float upon the nitric acid without mixing with it. If albumen be present, a sharp white band appears at the point where the acid and urine are in contact. This is often spoken of as Heller's test, and it is generally admitted to be the most certain and

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satisfactory method of determining the presence of small quantities of albumen.

The substances which may precipitate so as to simulate the presence of albumen claim consideration first. They are phosphates, mucus, uric acid, peptones, and resinous drugs, like copaiba.

Phosphates.—The old familiar statement, that phosphates are precipitated when alkaline urines are heated, has done harm in making many forget that the same thing may occur with distinctly acid specimens. It frequently happens that urine which turns blue litmus red gives a precipitate on boiling, which disappears when a few drops of nitric acid are added. In such a specimen, if sufficient acid be added previous to boiling, to prevent the precipitation of phosphates, the precipitation of albumen may also be thereby interfered with; for, in very acid urine, small quantities of albumen are often converted into acid albumen and will not then be precipitated on boiling.

The best test for urine which deposits phosphates on boiling, in spite of being acid, is the cold nitric-acid test. By this test the presence of albumen will be distinctly shown without any precipitation of phosphates to obscure it.

Mucus.—Normal urine often contains a considerable quantity of mucus, more or less dissolved at first, but separating as the urine cools, and producing a cloudy appearance. Mucus is not precipitated either by boiling or by nitric acid, and it therefore does not usually interfere with the tests for albumen. There are two exceptions to this rule: 1. When the urine is alkaline. 2. When so much mucus is present that the urine is too cloudy for a slight precipitate of albumen to be distinctly seen. Before discussing the first exception, it will be necessary to recall the fact that, if a small quantity of albumen be present in alkaline urine, it may be converted into alkali-albumen, and will not then be precipitated on boiling. If the specimen be first neutralized by adding to it a few drops of acetic acid, and then boiled, the albumen will be precipitated as usual. It is therefore necessary to neutralize alkaline urine before employing the heat-test for albumen; and it is further necessary that acetic

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acid should be used for this purpose and not nitric acid, for the addition of a few drops of nitric acid previous to boiling will sometimes entirely prevent the precipitation of albumen, even in specimens which contain it in abundance. The writer has had under his care one case in particular of advanced Bright's disease with extensive dropsy and casts, in which the previous addition of a few drops of nitric acid prevented any precipitate on boiling, although the urine contained a large quantity of albumen. In this case, the presence of albumen was always plainly shown by the cold nitric-acid test or by boiling after neutralization with acetic instead of nitric acid. Now, if a specimen is to be examined which is alkaline and also contains mucus, a difficulty presents itself in the fact that acetic acid precipitates mucus. If we boil the alkaline urine without neutralizing it, the albumen contained may not be precipitated. If we add acetic acid to neutralize the urine, the mucus may be precipitated so as to resemble albumen; and we can not neutralize the urine with nitric acid, because this again may prevent precipitation of the albumen. From these considerations it is evident that we can not depend upon the heat-test to show a small quantity of albumen in an alkaline urine which contains mucus. Under the circumstances, it is best to employ the cold nitric-acid test, which precipitates albumen equally well in alkaline urine and does not precipitate mucus. Under the latter exception, when so much mucus is present that the urine is too cloudy for a slight precipitate of albumen to be seen distinctly, the mucus should be removed by the following process: Add two drachms of urine to an equal quantity of liquor potassæ in a test-tube, warm gently, and then filter. The fluid which comes through will be free from mucus and may be tested for albumen by the cold nitric-acid test. The writer has satisfied himself by experiment that the removal of mucus in this way does not interfere with the subsequent detection of small quantities of albumen. The experiment was as follows: In one test-tube were put, one drachm of an albuminous urine, one drachm of non-albuminous urine cloudy with mucus, and two drachms of liquor potassæ; and the mixture was then warmed and filtered in the

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manner described. Into another test-tube were then poured, one drachm of the same albuminous urine, one drachm of normal urine without mucus, and two drachms of water. Both test-tubes, therefore, contained the same quantity of albumen and the same proportion of other constituents, the only difference being that the contents of one had been put through the liquor-potassæ process for removing mucus, while the other had not. When these two specimens were subjected to the cold nitric-acid test, they each gave the same quantity of albumen-precipitate, showing that the mucus-removing procedures which one of them had undergone had not modified its subsequent reaction.

Uric Acid.—If a specimen of urine contain uric acid or urates in considerable quantity, the following mistake may be made: A specimen of acid urine is boiled, and a few drops of nitric acid then added, without the appearance of a precipitate. The test-tube is put aside for perhaps fifteen minutes, and then looked at again and shaken. A precipitate may now be present, which may be mistaken for albumen. This is probably composed of urates and uric acid, which have been deposited as the urine cools, because the specimen has been rendered more concentrated by boiling and more acid by the addition of nitric acid. To settle the question, boil the urine again; if the deposit be albumen, it will remain unchanged; if it be anything else, it will redissolve and disappear.

There is also a possibility of error when concentrated urine is tested by the cold nitric-acid method. In this case, a precipitate of uric acid and urates, somewhat resembling albumen, may form near the point where the urine and nitric acid are in contact. This is best avoided by diluting the urine with three or four parts of water before pouring it upon the acid. The urine will then no longer be concentrated enough to yield a precipitate of uric acid and urates, and the reaction for albumen will not be interfered with.

Peptones.—These more or less digested forms of albumen are often present in the urine, both in cases in which the urine also contains ordinary albumen and in cases in which it does not. True peptone, or completely digested albumen, is not precipitated

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by nitric acid or by heat, and, consequently, does not claim discussion in this paper; but there is a form of incompletely digested albumen, called hemi-peptone, which is precipitated by cold nitric acid, and, therefore, must be mentioned here. It was first described by Bence Jones, and from this is commonly called "Bence-Jones albumen." He found it in the urine of a case of osteomalacia. It is not precipitated by boiling; and it gives a precipitate like ordinary albumen with cold nitric acid, but this is redissolved on the application of heat. In this way it may be easily distinguished from ordinary albumen, and here lies its sole importance. It possesses no established clinical significance.

Resinous Drugs, like Copaiba.—Nitric acid often causes a precipitate in the urine of those who are taking copaiba, turpentine, or other resinous drugs. The odor of the urine, with the history of the patient, is generally sufficient to prevent error; but, in case of doubt, the addition of alcohol will dissolve the resinous precipitate and thus distinguish it from albumen.

When the urine contains blood, pus, prostatic fluid, or spermatic fluid, albumen will be present, which must be distinguished from albumen coming from the kidneys.

Blood.—Urine containing a small quantity of blood has a smoky appearance; and when a large quantity of blood is present, the urine is reddened and may contain clots. Even a very slight admixture of blood renders the urine highly albuminous. It is inferred that the albuminuria is dependent entirely upon the blood mixed with the urine, when the daily quantity and specific gravity of the urine remain normal and no symptoms of renal disease are present. The presence of blood is usually determined by the microscope. In some cases, however, the corpuscles are dissolved in the urine, leaving only albumen and coloring matter to prove the hæmorrhage. In such a case, having found albumen, and suspecting, from its smoky appearance, that the urine contains blood, test for hæmoglobin as follows: Wet a piece of white blotting-paper in the urine and dry it slowly over a spirit-lamp. When it is dry, drop upon it two drops of tincture of guaiacum, and a moment later, one drop of

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ozonic ether. If the urine contain hæmoglobin, a blue color will develop in a few minutes as the spirit evaporates and leaves the paper dry. This test can not be relied upon if the patient be taking iodine in any form.

It should be remembered, in this connection, that the urine often contains albumen in the course of jaundice. A urine containing bile coloring matter and albumen is to be distinguished from bloody urine in which the corpuscles have disappeared by solution. The distinction is made by testing for hæmoglobin as described above, and then for bile-pigment with the familiar nitrous acid, or Gmelin's test.

Pus.—Urine containing pus in any quantity is always albuminous, the albumen coming from the pus-serum. The only problem which is of interest to us in this connection is the discrimination between albuminuria from renal disease and albuminuria from bladder-catarrh. If a specimen of urine, otherwise normal, contain a trace of albumen and a few pus-cells, can we say that the presence of pus-cells shows that the albuminuria is due to catarrh of the urinary passages? The books tell us that, if more albumen be present than would correspond with the quantity of pus-cells in the urine, this excess must be referred to the kidney and be taken as evidence of renal disease. This statement is based upon the assumption that the relation between pus-cells and pus-serum is a constant one, and that so much pus-serum is always exuded with so many pus-cells. This is a mistake; there is thick pus, and thin, watery pus. Thin, watery pus contains more albumen in proportion to its cells than does thick pus. This may easily be proved by adding them to two specimens of normal urine until there is an equal deposit of cells at the bottom of each. The specimen to which thin pus has been added will then be found to contain much more albumen. This is further shown, also, by the clinical fact that while on one day a specimen may be seen containing a little albumen and a few cells, on the next day one may be met with which contains as many pus-cells with no albumen. The albumen contained in the former specimen can not with certainty, therefore, be attributed to the pus present. Except in extreme cases, it is

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not possible to be sure that in pus-containing urine more albumen is present than the pus can account for. In such cases, the co-existence of renal disease can only be inferred from the presence of casts and from morbid variations in the daily quantity and specific gravity, with corresponding associated symptoms.

Prostatic or Spermatic Fluid.—If a specimen of urine contain prostatic or spermatic fluid, it will be slightly albuminous. In the "Lancet" for May 13, 1882, Dr. Bradbury describes some cases of slight and intermittent albuminuria, in which he believes that spermatic and prostatic fluids were squeezed into the urethra during efforts at defecation and so imparted an albuminous reaction to the urine. Senator also speaks of this in his work on albuminuria and recommends that the urine first passed be thrown away and a specimen taken from the later flow. In this way, only the urine which was passed after the urethra had been washed out would be examined, and all such sources of error would be removed.

In conclusion, it may be said, by way of moral, that attention paid to the details of ordinary urinary analysis is time well spent; for there are few greater mortifications in the experience of a physician than to see albuminuria demonstrated where he has positively denied its presence, or to see its absence proved in a case in which he has confidently affirmed its existence.

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THE EARLY USE OF THE KNIFE IN ANGIOMATOUS NÆVI AS COMPARED WITH OTHER METHODS OF TREATMENT.

By Samuel W. Smith, M. D., of New York County.

Read November 20, 1884.

Mr. President and Fellows of the Association: In presenting this paper for your consideration, I shall, at the outset, express my decided preference for the more general and the early use of the knife in dealing with those troublesome and unsightly vascular growths which appear on the face of infants and so rapidly increase in size. I am aware that this will seem to you a bold position to take, antagonistic as it is to many eminent and trustworthy authorities; nevertheless, we are here for an interchange of views derived from actual experience, regardless of their conflicting relations to the theory and practice of others. Facts are stubborn things; and we can not afford to ignore them, however unwelcome they may be. It is not necessary that I should consume your time with a review of the various plans of procedure recommended by others, such as the application of caustics, the use of coagulating injections, the ligature, electrolysis, acupressure, hot needles, etc. I concede that all these have their advantages and disadvantages; but none, I firmly believe, is so immediate in good results as the use of the knife, while in my opinion they are all more fraught with danger from the absorption of putrescent matters. I use the term angiomatous nævi, without particularizing the exact pathological character of these

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growths, as to whether the venous or arterial elements predominate; for it not infrequently happens that the two exist in equal proportions. The rapidly increasing size of these tumors with the growth of the child makes their treatment, at an early stage of development, a matter of considerable importance, whatever may be the course adopted for their removal. I have seldom met with a case in which I should have hesitated to use the knife, from a lack of confidence in the results.

The following two cases are selected from those of a number of patients, treated by me at the Demilt Dispensary, suffering from these vascular growths. I have selected them for my paper because, at an early date in their history, I saw them and proposed an operation with the knife, when the tumors were comparatively small. I think the history of these cases will speak more forcibly and conclusively than I can write, in vindication of the early use of the knife in angiomatous nævi, as compared with other modes of operation for their removal.

CASE I.—*Angiomatous Nævus of the Face successfully removed with the Knife, after some other Method had been tried endangering the Life of the Patient.*—Mamie T., aged eight months, born of healthy parents, in October, 1883, was brought by her mother to the Demilt Dispensary, when four months old, for advice with regard to a birth-mark and a small tumor on the side of the face. The mother informed me that she first noticed the swelling underneath the birth-mark some two months previously, and that it seemed to be getting larger. Examination showed the following conditions: The wine-mark was of about the size of a twenty-five-cent piece, and was situated just below the zygoma and in front of the tragus. The tumefaction, of about the size of a hickory-nut, was not adherent to the skin, was soft and inelastic to the touch, compressible, and it increased in size whenever the child cried. I advised the immediate removal of the tumor with the knife; but the mother refused to have it done at that time, and left the dispensary. One month later, the mother returned with her child, the tumor having perceptibly increased in size, and said she would have me remove the tumor if I would use hot needles. Hot needles were not used, and she left the dispen-

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sary, to return again three months later, under the following circumstances: Some two or three weeks prior to her second return to the dispensary, she had evidently found some one who had carried out her plan of treatment for the removal of the tumor and birth-mark. I shall not repeat the history of the operation as given to me by the mother, as I might do injustice to some surgeon or institution. Suffice it to say, the child was brought back to me, simply an object of pity, suffering intensely from the effects of some kind of operation. The whole side of the child's face was swollen to an extreme degree, the swelling completely closing one eye and extending over the side of the forehead into the scalp. The wine-mark had disappeared, and instead, there was a dark-grayish ulcer, with thick bands of gangrenous connective tissue covering the tumor, which had increased to the size of an English walnut. The carotids were throbbing, the respiration was hurried, the pulse was not easily counted and was irregular, with a temperature of 103°, Fahr. (axillary), frequent attacks of vomiting, and a tendency to stupor. I carefully syringed out the ulcer with a solution of bichloride of mercury, 1 to 2,000, and, with a pair of scissors, cut away a number of gangrenous connective-tissue bands, which brought into view several pockets of pus. Thoroughly syringing these out, I carried my dissection a little farther, when a mulberry-like mass, containing a number of large blood-vessels distended with venous-colored blood, rolled up, and there was a rather profuse hæmorrhage. Passing a double ligature with an aneurism needle beneath the tumor, I crossed the ligatures and firmly tied them on either side, completely controlling the hæmorrhage. The greater portion of the mass above the ligature was cut away, and the wound was thoroughly cleansed with the bichloride-of-mercury solution. Twenty-four hours after the operation, the patient had very much improved. The tendency to vomit had disappeared. The temperature had fallen to 100·5°; the respiration was nearly normal; and the pulse was 110 and regular. A few drops of whisky in a little lime-water were given for a few days after each nursing. From this time on, the patient did well. The wound was thoroughly cleansed twice a day with the bichloride-of-mercury solution and was dressed with vaseline. At the end of the seventh day, the ligatures, with the remainder of the tumor, came away, leaving a healthy, granulating wound,

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which healed kindly and left no vestige of the tumor to be seen or felt.

CASE II.—*A Large Angiomatous Nævus of the Upper Lip of a Child Three Months Old, successfully removed with the Knife.*—Florence P., aged three months, born of healthy parents, was brought by its mother to the dispensary, April 1, 1884, for advice with regard to a small tumor of the lip, accompanied by a wine-mark. The mother informed me that, when the child was born, she noticed that the lip was stained with the wine-mark, and that, five or six days later, she found a small, hard lump on the lip. This tumor, although small at first, increased rapidly in size until, at six weeks old, when the child was brought to the dispensary, it was about as large as a common marble. Examination showed that the tumor involved all the tissues of the lip. It was compressible and doughy to the touch, and it increased in size whenever the child cried. It was not pulsatile in character, and the wine-mark discolored the mucous membrane as well as the skin over the lip.

I recommended to the mother, removal of the tumor by an operation with the knife. This she refused to permit, and she took the child away without further counsel. On April 29th, she returned to the dispensary with the child, asking advice concerning a hæmorrhage which had developed in the tumor and which was the result of an operation made elsewhere. She could not give me a correct account of what had been done to the child since its previous visit to the dispensary, but said that it had been taken to a clinic somewhere in the city, where an operation with hot needles or similar appliances had been performed. Since this operation, the child had refused to nurse and had become very feverish. Ulceration had set in, followed by excessive hæmorrhage, and this so alarmed the mother that she decided to come again to the Demilt Dispensary. The appearance of the child was very bad. The respiration was rapid, the temperature 102° (axillary), and the child was subject to frequent attacks of vomiting. In examining the tumor, I discovered a small pocket of pus beneath the skin, which seemed pent up and was covered with a thick scab. I removed the scab, thoroughly cleansed the cavity with a solution of bichloride of mercury, 1 to 2,000, and then applied a light compress saturated in a strong solution of tannic

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acid. This controlled the hæmorrhage. I informed the mother that, if the child recovered from its present fever, I should operate by removing the tumor entire. The lip seemed so unsightly to her that she said she would rather that the child should die under an operation than live in its present condition. I therefore gave preparatory treatment, and, in the course of five or six days, the child

FIG. 1.—APPEARANCE OF THE LIP IN CASE 2. (From a Photograph taken on the Day before the Operation.)

had so far recovered that I decided to operate on the following Sunday at my office. A cast of the tumor, and this photograph, which I here show you, were taken on the Saturday before the operation. The tumor was then enlarged to the size of an English walnut.

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The child was in fair condition. The fever had abated, and she was able to retain food, although she was very anæmic from the loss of blood resulting from the former operation. On June 8th, in the presence of Professor J. W. Wright and my assistants, Dr. Segur and Dr. Carpenter, I placed the little patient under ether and proceeded to operate. I cut away about four fifths of the entire

FIG. 2.—APPEARANCE OF THE LIP IN CASE 2. (From a Photograph taken ten Days after the Operation.)

lip, leaving as much of the vermilion border and of the orbicularis oris muscle as I could, in order to assist in the formation of a new lip. During the operation, the coronary arteries were held by my assistants, so that there was no great loss of blood. After removing the tumor, I dissected up the edges of the integument

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on either side and brought the parts together, using one hare-lip pin and uniting the edges of the wound by fine catgut sutures. The after-dressing consisted simply of a piece of lint laid over the wound and kept moistened night and day, by the aid of a drop-glass, with a solution of bichloride of mercury, 1 to 2,000, for the first forty-eight hours.

On June 10th, I removed the hare-lip pin without disturbing the dressing. On June 15th, I removed the dressing and found the wound united by first intention. On the same day, I allowed the babe to nurse its mother, which it did readily and well. This photograph, which I now present for your inspection, was taken ten days after the operation.

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ABSCESS OF THE LIVER.

By E. G. Janeway, M. D., of New York County.

Read November 20, 1884.

The subject which I have chosen for presentation is not new, and it is one the literature of which is well advanced; yet it has appeared to me that it might not be inopportune to reintroduce an old acquaintance. The reasons for my selection have been the comparatively large number of cases that I have met with this year, the impression, which is pretty general, that the disease is of very uncommon occurrence in our climate, with the consequent failure to be on the lookout for it, and the mistaken opinions concerning the nature of the symptoms which very good clinical observers at times fall into.

"Abscess of the liver" is not a homogeneous subject, but is one requiring considerable subdivision for intelligent consideration. Suppuration in the liver may occur, either in the form of single or multiple abscess, of suppurative pyle- (or portal) phlebitis, or of purulent catarrh of the bile ducts; and, in close relationship with the liver, we may meet with abscess of the gall-bladder, or abscess between the liver and the diaphragm, properly called subdiaphragmatic, or, perhaps better, supra-hepatic abscess.

It is my intention to limit my remarks to the proper abscesses of the liver. These, as has been observed, are single or multiple; and the former may have no apparent cause, being, as it is termed, idiopathic, while the latter are dependent upon infection through the portal system, or are a part of a pyæmia from systemic infection, in contradistinction to portal. I believe, how-

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ever, that some simple abscesses of the liver are due to infection through the portal system, several small abscesses uniting to form larger ones. During the present year, I have met with seven cases of abscess of the liver, two of abscess between the diaphragm and the liver, and one of abscess of the gall-bladder. Of the seven cases of liver-abscess, four of the patients are living, three having recovered as the result of operative procedure, and one, with spontaneous perforation, is on the way to recovery. Three cases have terminated fatally; one as the result of exhaustion from the original disease, the abscess of the liver having perforated the lower lobe of the right lung and discharged *per bronchia;* one as the result of perforation of the pleura and the exhaustion accompanying this; and the third, from the severity of the liver-affection. Let me invite your attention to some of the details in these seven cases:

Case I.—Dr. B. D. This gentleman was of active habits, without decided tendency to disease. Some years ago, he was supposed to have phthisical trouble in his right lung. The beginning of his present illness was in September, 1883. The symptoms were those of malarial trouble, and, during the course of his illness, he had jaundice of moderate grade. From this he recovered sufficiently to go to Arkansas on a shooting-trip; but, while there, during December, he was thrown from his horse, striking on his right side over the region of the liver. After this he became worse, and severe pain developed in the hepatic region, which, later, extended to the right shoulder. The temperature became hectic in character, and he lost flesh and strength. When I saw him, in February, 1884, he had intense pain in the cervical plexus of the right side, a markedly enlarged liver, a large spleen, and evidence of dry pleurisy on the right side, with feeble respiration and slight crumpling sounds at the right apex. He also had perspirations at night. The enlarged liver was tender on pressure, but no hepatic friction could be developed. His skin was dark, but not decidedly jaundiced. The temperature was high at night, but normal, or nearly so, in the morning. He was unable to move about much on account of pain and shortness of breath which were produced by exertion.

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The questions which arose in the diagnosis of his case were the following:

1. To what are these symptoms to be attributed? Are they due to the combination of several morbid processes, or is there only one at work?

2. Is it simple malaria?

3. Is it tuberculosis with malaria?

4. Is it abscess of the liver? If so, did the fall in December originate it, or should it date back to the time of the malarial attack in the early autumn?

My own impression was, and I so stated to the physicians accompanying him, Dr. Johnson and Dr. Scott, that he had hepatitis, with developing abscess of the liver; that the signs at the apex of the right lung were indicative of the old process which existed some years before; that it was impossible to decide whether the disease dated back to the fall and injury to the side, or whether it should be referred to the time when he first became ill; but that the fall upon a liver enlarged by a previous malarial trouble would be more likely to produce disease, and would better explain the conditions and history. It was admitted that an absolutely positive opinion could not be given without exploration. He was seen at the same time by two other physicians. He went to Nassau, but he did this in opposition to the opinion I had expressed when consulting about his condition; for a tropical climate did not seem well adapted to a case of possible abscess of the liver.

My reasons for the diagnosis were that, so far as his lungs were concerned, there seemed to be no such active process as would account for the symptoms present. In fact, what previous trouble he had suffered would account for the physical signs, except the evidences of dry pleurisy below. That while this might, perhaps, be due to tuberculosis starting from some infecting point, yet, in view of the condition of the liver and spleen and the history of the case, it would do more violence to the facts to suppose this, than to think it either intercurrent or possibly due to an irritation propagated from below.

While in Nassau, he had for a time a severe fever, with pain in his side, and was generally confined to the house. He reached home in May, and for a time seemed to improve; but at the end of the month he was seized with dyspnœa and collapse, from which,

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thanks to the careful skill of his physicians, he had rallied when I visited him on the 3d of June. They had found his right pleural cavity filled, and, in connection with the past history, supposed this was due to the bursting of an abscess of the liver through the pleura.

He had emaciated considerably since the time I had previously seen him, and had, owing to the loss of the use of the right lung, marked dyspnœa. By aspiration, three and a half pints of a liquid resembling tomato-catsup in color were drawn off. This, examined microscopically, was found to contain red blood-globules, fatty pus-cells, and granular matter, but no well-formed or recent pus-cells. Moreover, these cells were not close together in the liquid. The liquid coagulated on the addition of acetic acid. Under these circumstances, and in view of the difficulty of dealing with the abscess of the liver in case of a free incision, it was decided to aspirate two or three times more, and, if the liquid should be offensive, or if severe hectic or marked suppuration should develop, then free incision into the chest, with efficient counter-opening to secure good drainage, should be made, and the chest washed out. The following letter, which gives the subsequent history of the case, I received from Dr. M. L. Scott, his attending physician:

"Our friend, Dr. D., died at 10 A. M. on the 3d of July. You left him on the 4th of June. On the 9th, I withdrew 2½ pints of liquid; on the 13th, 3 pints; on the 17th, 3¾ pints; and on the 24th, 4 pints and 2 ounces. At all these aspirations, we got liquid of an appearance similar to that which you saw. Only at the last aspiration was the fluid offensive. On June 27th, we did drainage, and thoroughly washed out, not only then, but until the end, with antiseptic precautions. His course, especially after the drainage, was downward. He rapidly passed into an asthenic state, the pulse rising and the temperature falling. At the last, morphia was necessary to quiet his restlessness. A persistent dysentery developed four days before drainage was performed, and, resisting all treatment, continued until the end.

"I made the autopsy six hours after death. Emaciation and jaundice were everywhere extreme. The heart was found somewhat displaced to the left. The left lung and pleura were perfectly normal, with the exception of a few filiform adhesions at the base. The right lung was completely collapsed and was firmly

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adherent to the pleura at the apex and anteriorly, at the junction of the second and third ribs with the sternum. Both surfaces of the right pleura were much thickened. The drainage-tube traversed the cavity for four inches, and was in the best possible position for drainage. Through the diaphragm we found an irregular opening, two inches in diameter, leading downward into an hepatic abscess. The abscess held twenty-four ounces. Its walls were eroded and surrounded by a dense cicatricial tissue half an inch thick. The abscess had burst through the highest portion of the diaphragmatic arch. It was nearest the peritonæum at its lower and anterior portion. Here it was an inch and a half from the free surface. The liver weighed seven pounds and a half. The left lobe was as large as the right. On the anterior surface, we found an irregular, retracted cicatrix marking the site of a former perihepatitis. On the concave surface of the left lobe, we found an abscess, as large as a hen's egg, about to burst into the peritonæum. In various situations through the hepatic structure, we found half a dozen small purulent accumulations of a pyæmic nature. The kidneys were three times their natural size and had undergone waxy degeneration. The spleen was enlarged, and, as well as the liver, had undergone waxy degeneration. No tubercular or malignant change was found at any point. The rectum was inflamed and superficially ulcerated. The mesenteric glands were normal.

"Yours, very respectfully,

"M. L. Scott.

"Lexington, Ky."

In this case, it seems certain that the small abscesses were secondary and of a pyæmic nature, as Dr. Scott has written in his description.

Case II.—This was in a child, three years and a half old, brought to me by Dr. Taylor, of the Hospital for the Ruptured and Crippled, in May last. This child lived on Long Island, and had been gradually growing weaker, without, as the mother said, having had fever or anything beyond a swelling in the abdomen. A careful cross-examination, after a decision as to the nature of the trouble had been reached, failed to establish any cause for the liver-abscess from which this child suffered. The mother denied

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the occurrence of any fall or hurt, diarrhœa, dysentery, or any other trouble, preceding or following the appearance of the swelling, which, according to her account, had been progressing for nine or ten months. An examination revealed a tense, elastic tumor in the epigastric region, which, judging from its situation, probably occupied the left lobe of the liver. The child cried so violently on our approaching or touching the tumor, that it was necessary to use ether in order to make an examination and an exploratory aspiration. Not having time on that day, I postponed this, owing to absence from the city, until June. In the mean time, Dr. W. T. Bull had also seen the child, and, at his request, it went to the New York Hospital, where I saw it with him at the time of the operation.

An exploratory aspiration revealed pus. The examination was followed by a free incision, the introduction of a drainage-tube, and washing out with bichloride solution, 1 to 5,000. The left lobe of the liver was found adherent to the anterior abdominal wall, and nearly a quart of pus was evacuated.

Dr. Bull informed me that the child subsequently made a good recovery.

In this case, from the history given by the mother, from the age of the child, and the presence of a slowly growing tumor markedly elastic to the feel, I had supposed it more likely to be an hydatid sac, although, as you all probably know, hydatids are extremely infrequent in this country, and they occur, almost if not quite exclusively, in those who have at some time lived abroad or are immigrants. I had, however, qualified this possibility by insisting on the necessity of an exploratory aspiration for diagnostic purposes.

Such a case is a very good illustration of an idiopathic abscess of the liver. The fact that the mother denied the occurrence of a fall or injury does not render it impossible that the child may have had one.

Case III.—This case occurred in Bellevue Hospital, last August, while I was visiting for Dr. Smith during that month.

J. G., aged thirty-two, born in the United States, was admitted to the hospital, August 7, 1884. The patient said that, with the exception of an attack of Bright's disease, nine years ago, he had

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been well up to the time of his present illness, three weeks before admission. He was then taken with severe pain in his left side, which was intensified by any movement of the body. His bowels had been regular, and his appetite good, but he had gradually been losing in flesh and strength. He denied having at any time had chilly sensations or a feeling of fever.

On admission, the patient was found weak and anæmic, complaining only of pain over his left side. An examination revealed the presence of a tumor in the median line, occupying the epigastric region. This tumor did not move with respiration. It was elastic to the touch, and, judging from its position, was situated in the left lobe of the liver, which, from its not moving with respiration, was probably adherent to the anterior abdominal wall. Moreover, there were no friction-sounds over it. The diagnosis was a probable abscess of the left lobe of the liver. The patient had, in addition, a faint presystolic mitral murmur, with slight enlargement of the heart. The urine contained a small quantity of albumen, but otherwise it was normal.

On the following day, a free incision was made into the abscess, under ether, and a large quantity of pus was evacuated. The abscess-cavity was washed out with bichloride solution, 1 to 5,000, a drainage-tube was introduced, and the wound was dressed antiseptically. An exploration at the time of the operation showed the abscess to be in the left lobe of the liver. After this, the cavity was washed out with a bichloride solution, 1 to 2,000. It discharged very little and was neither tender nor painful. On the 25th of August, the cavity was closed by healthy granulations, the patient having in the mean time gained in flesh and strength. He was discharged on October 3d, having made a good recovery.

Case IV.—This patient occupied a bed in the ward with Case III. He had been admitted and operated upon while Dr. Smith was attending to his service, but he passed under my supervision and observation during August.

C. B., aged thirty-five, porter, was admitted to Bellevue Hospital, July 23, 1884. With the exception of a stricture, he had been well until two months before admission, when he had intermittent fever for nine days. After this, he was well until five weeks before admission, when he had severe pain in his left side, which had continued without intermission.

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Nine days before admission, he noticed a small lump just over the ensiform cartilage, which had gradually increased in size and was tender on pressure, but not otherwise painful. This, after a few days' stay in the hospital, was incised, washed with a carbolic-acid solution, dressed antiseptically, and allowed to discharge through a drainage-tube. Suffice it to say that the patient made a good recovery. This case properly belongs to Dr. Smith, and I am content to report it thus briefly.

CASE V.—Mr. O., a resident of Brooklyn, called at my office with his physician, Dr. Peer, on Monday, October 27, 1884. He was forty-three years of age, and had been well, with the exception of his present disease. He was a man of good habits. At this time, he denied that he had suffered any injury or strain at the beginning of his trouble; but later, on inquiry from his wife, the following history was obtained:

In December, 1881, having a gun in his left hand, he ran to catch a car, and seized it expecting it to stop; but in this effort, he received a severe wrench in his right shoulder and was dragged for some distance without losing his feet. He was laid up by the sprain of his shoulder, and, while under treatment for this, began to have pain in his right side over the region of the liver, which was accompanied with marked enlargement. At this time he lost flesh and strength and had some fever. He made a journey to Cuba, and returned without improvement, but shortly afterward suddenly began to improve after taking taraxacum, and apparently recovered completely. During this time, he lost thirty pounds in weight. About a year and a half later, he had an attack of pain over the liver, with some swelling, lasting for three weeks, and he again improved. The attack for which I saw him began in August, and it came on after running to the cars while in the country for the summer. He had been driving, and the breaking of an axle threw the other occupants out of the vehicle, while he remained seated. He says that he experienced no jar, and that his run afterward to the train involved no great effort.

He was soon affected with enlargement of the liver, pain in his right side, a slight evening-rise of temperature, and a gradual failure in flesh and strength. His weight had decreased twenty-five pounds at the time of his visit to me.

For a short time before this, he had suffered intense pain over the

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liver and in his right shoulder. At the time of his visit, the most notable symptoms were the hepatic tenderness and enlargement. The enlargement was such that the line of hepatic flatness was increased in an upward direction for an inch and a half, and downward for two inches. The diagnosis was abscess of the right lobe of the liver in the convexity of the diaphragm, which seemed, in view of the severe pain, to be producing perihepatitis. Neither fluctuation nor any evidence by which the abscess could be located absolutely was obtained. A blister over the right side was advised, a careful record of temperature was made, and Warburg's tincture was used for the fever.

The pain disappeared very soon after the application of the blister. The evening-temperature rose to 102° Fahr. After three days, a cough occurred, accompanied with slight expectoration, and followed, on the sixth day, by a more severe cough and an expectoration which amounted to a chamberful in twenty-four hours.

The expectoration was of a brownish color, thick, and somewhat tenacious. Under the microscope, it showed fatty pus-cells, granular matter, and blood-globules, but no distinct evidence of bile-pigment. A physical examination, made on the 3d of November at his house, showed marked dullness over the greater part of the lower lobe of the right lung, feeble respiratory murmur over this area, attended with numerous coarse, moist râles, with normal respiratory murmur and absence of râles over the rest of the right and over the left lung. Moreover, his respiration was not markedly hurried, and the area of hepatic flatness had considerably decreased since my former examination. In view of the quantity of the discharge, the slight effect upon the lungs, the improvement in his general condition, and the diminished size of the liver, it was decided that it would be wiser to wait for a few days than to explore the liver with a view of removing the pus by aspiration. On Tuesday, November 4th, two days after the marked discharge from his lungs, he had colicky pains in the abdomen, followed by several movements and a discharge of pus with blood in clots. On the next day, his bowels were quiet; but on the 6th he again had smaller passages, accompanied with some blood. A re-examination on this day showed that the respiratory murmur had returned over the right lower lobe, that the râles had disappeared, and that, beyond a diminished resonance over this portion, there was nothing to indicate that the

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abscess had discharged through the lung. The area of hepatic flatness had still further decreased, the temperature was normal, and the patient felt himself markedly improved. The treatment adopted was symptomatic and supporting from the time of his first visit. I have heard that he is progressing favorably, although I have not seen him since.

This case illustrates the advantage of a counter-opening. A careful review of the case makes it seem probable to me that he had an abscess of the liver during the time of his first illness, two years and eight months before the discharge spoken of above; that this became latent, and that in his efforts, without his knowledge, when the axle broke, or during the subsequent running, he received injury sufficient to revive the former trouble, possibly around the wall of an old abscess.

Since writing the above, a second discharge has occurred through the lung, and at this time the discharge by the bowels ceased. The patient's general health has improved.

Case VI.—W. R., male, aged twenty-two years, was admitted to Mount Sinai Hospital, March 8, 1884. His past record was of no importance, and there was nothing marked about his family history. His illness began, three months before admission to the hospital, with chills, repeated every afternoon, lasting a quarter of an hour, and not followed by perceptible fever but by sweating during the night. These continued until three weeks before his admission, since which time the chills had ceased, but the sweating at night continued. He had suffered severe pain in the left hypochondriac region and across the back, which came and went. He had lost flesh, strength, and color. Two weeks before entering the hospital, he had lost some blood at stool. He had been up and about until two weeks before admission, and his bowels had been regular until three days before, since which time he stated that he had three or four thin stools daily. On admission, he was emaciated, pale, of a sallow complexion, having loose movements from the bowels, and complaining of pain in the back and in the left hypochondriac region. His pulse was feeble and frequent. After a short stay in the hospital, he was found to have a psoas abscess on the left side, and at different times friction-sounds were heard over the lower part of each lung.

The peculiar points in his history were the following: Three

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weeks after admission, he suddenly expectorated a teacupful of pus. On the next day, the psoas abscess was found diminished in size, with very evident fluctuation. The existence of gas could be ascertained where previously only pus had been found. His liver had been, and was still, enlarged, and his breath was of that sweetish odor indicative of suppuration. His pulse was frequent from the first, and his temperature ranged from 98° to 99° in the morning, and from 99° to 103° in the evening, until the four days preceding death, after which it did not reach 100°. He died rather suddenly, while straining at stool. He persistently refused to submit to any exploration or operation.

The autopsy revealed an abscess situated in the convexity of the right lobe of the liver, which had perforated the diaphragm and opened into a bronchus in the right lower lobe, this explaining the sudden expectoration of pus. In his liver, in addition to the large abscess, there were several necrotic areas. The psoas abscess communicated with the descending colon, which was the seat of follicular dysentery. He had, in addition, a single kidney situated on the right side.

From the order of events in this case, it is certain that the psoas abscess was primary. Next followed the dysentery, and, accompanying it, the abscess of the liver. During life, these sequences were not so easily made out, for, when the diagnosis of psoas abscess had been made, the accompanying diarrhœa seemed possibly the result of tubercular rather than of simple follicular ulceration; and, moreover, the friction-sounds over each lower lobe seemed to point toward a possible generalization of the supposed tuberculosis, whereas the subsequent evidence showed it to be due, on the left side, to a propagation of the inflammation, and on the right, to the hepatic abscess. Again, when, following a discharge of pus from the lung, air was found in the abscess-sac, it seemed probable that the abscess had discharged *per bronchia*, especially as I made careful inquiry as to whether there had been any blood or matter in the stool which would indicate a perforation of the bowels; and, receiving a negative answer, I felt justified in considering the pus voided by the lungs as coming from the psoas abscess. The cause which led

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to the mistake about the evacuation was that the pus had a slaty hue due to the bismuth which he had been taking.

CASE VII.—Thomas Coogan, aged forty years, a longshoreman by occupation. No good history could be obtained from this patient, he having been sent to the hospital as a case of alcoholism. From his account, which was probably incorrect, he had been ill for only five days. His symptoms consisted of delirium, fever, and a large, tense abdomen, the last due in great measure to a marked increase in the size of the liver. To dyspnœa was added marked and rapid prostration of the vital forces. His bowels were constipated and required a laxative. On inspection of this patient, I reached the conclusion that he had inflammation of the liver, which either had formed or was forming an abscess. There was no clew to the exciting cause. A single exploration was made, with a negative result. The case terminated fatally.

The autopsy showed multiple abscesses of the liver, varying in size from that of a marble to that of a small apple. The extent of liver-tissue involved in the abscesses seemed greater than that which was unaffected. In several places these abscesses had excited a perihepatitis. The only other organ involved was the cæcum, in which there was an ulcer at its dependent portion, which had destroyed the mucous membrane for a space an inch and a half in length by half an inch in width, and also a follicular ulcer about the size of a large pea.

My reason for introducing this case is that it shows how severe an affection can start from a limited infecting surface. The ulcer was undoubtedly of older date than the hepatic trouble. It seems not improbable, in view of the fact that I, as well as others, have met with a number of cases of solitary abscess following dysentery, that some of the so-called idiopathic abscesses are in reality dependent upon an infecting surface in the stomach or bowels.

The symptoms of abscess of the liver are not uniform; for in some cases we have the action of the cause still persisting and adding its phenomena to the effect produced by the suppuration of the liver. There exist, also, differences in the situation and

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size of the abscess as well as peculiarities in the patient. The main phenomena, however, are few. They consist of a more or less marked enlargement of the liver as a whole, or of that lobe which is the site of the disease; of a hectic type of temperature, the limits of which, in many cases, are not great, and in some cases, with no thermometric record, it may be denied that fever has occurred; of pain and tenderness over the liver, especially if perihepatitis co-exist; in not a few instances, of a reflected pain in the right shoulder in cases affecting the right lobe; and of progressive loss of flesh and strength. Jaundice is much more conspicuous by its absence than by its presense. The same may be said, so far as my experience goes, of melancholia. Of late years, owing to the extravagant statements of some writers, I have paid particular attention to this point, and have been strongly impressed by the absence of marked depression of spirits in these cases. One of my patients, in reply to the question, why he was not melancholy, replied: "What is the use? I may as well put up with what is the matter with me." I am convinced, therefore, that the connection which has been supposed to exist between these conditions is fancied rather than real. Moreover, autopsies in persons who have died with melancholia do not afford correlative proof.

Hepatic enlargement, either with or without tenderness, and fever of a hectic type, with some loss of flesh and strength, are in many cases the only symptoms of the disease. When the abscess discharges or is in the way of discharging, we meet with additional symptoms, which are varied according to the course taken by the discharge. The channels thus sought, in my experience, have been, the pleura, bronchial tubes, pericardium, peritonæum, and intestine. Cases are on record of other avenues of exit. Of these you will find mention in literature. I may add that I have never met with an abscess of the liver which had spontaneously discharged externally. All such as were about to discharge in this way were opened.

In order to bring this paper within the limits of the time allotted to me, I desire to call attention briefly to certain points in connection with the subject.

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1. Abscesses of the liver can practically be divided into those affecting the left lobe or the lower part of the right lobe, so that the abscess when formed produces an elastic or fluctuating tumor below the free borders of the ribs, and those situated in the upper or posterior portion of the right lobe. The reason for this division is that abscesses in the first two situations are readily recognized and are easy of access for the purpose of operative interference. The abscess in the last-mentioned situation is the one that oftener gives rise to difficulty in diagnosis, or, if diagnosticated, to doubt as to the best and the safest methods of treatment.

2. There are several methods by which the existence or the non-existence of adhesions between the liver and the abdominal wall can be made out. The presence of hepatic friction, audible or tactile, indicates the absence of adhesions but a probability that they will soon be formed. If, on palpation, the edge of the liver be found to remain fixed and not to descend with respiration, adhesions have in all probability taken place. Again, a long needle, either of a hypodermic syringe or an aspirator, introduced into the liver, will, if the outer end be left projecting, be seen to move upward as the liver descends, and downward as the liver ascends, in case no adhesions exist. But, if these have formed, the needle does not move.

3. The difficulties which arise in the diagnosis of liver-abscess may in many cases be surmounted by a careful survey of the history and of the condition of the liver, and by exclusion of the existence of sufficient disease in other organs to account for the symptoms.

The mistakes which I have seen made have been the following:

a. To mistake a liver-abscess for some other trouble, as malarial fever (remittent and intermittent), typhoid fever, or tuberculosis.

b. To mistake an abscess of the liver for some other disease of the liver, as hydatids, cancer, congestion, fatty liver, or hyperplasia.

c. To mistake the swollen liver for an aneurism of the aorta,

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especially in cases of abscess of the left lobe of the liver, when pulsation is communicated to it by the aorta.

d. To mistake an abscess of the gall-bladder for an abscess of the liver, or the reverse.

e. To mistake a supra-hepatic abscess for an abscess of the liver.

f. To mistake an abscess of the liver for an abscess of the abdominal wall, or the reverse.

Some years since, I supposed that a distinction could be made between liver-abscess and cancer of the liver by careful attention to the patient's temperature; but subsequent investigation has shown that, in cases of rapidly growing or disseminating cancers, a hectic type of temperature may exist.

4. As regards the ætiology of liver-abscess, I believe that many of the apparently idiopathic cases are of traumatic origin. I have in several instances noted its occurrence in persons who were in the habit of lifting heavy weights, particularly those who did so in hot places, as firemen, those unloading vessels, etc., by placing the right elbow firmly against the side as the weight is raised. By this statement, I do not mean to deny the probable influence of bacteria in the origination of abscesses, but to attribute to traumatism the establishment of that favorable condition which will allow of abscess-formation.

In conclusion, I may add to this paper, which is intended to present the subject in a practical manner, a few remarks on treatment. I believe that all accessible abscesses associated with an adherent liver are best dealt with by free incision, washing out with an antiseptic liquid, the introduction of a drainage-tube, and antiseptic dressing.

I had occasion, in one case of non-adherent liver with abscess, to employ the following means for promoting adhesions: The abscess was situated in the lower portion of the right lobe, so as to be reached below the free border of the ribs. An abdominal bandage was wound with moderate tightness around the body, and the abscess was then emptied by aspiration through a canula, a trocar being used instead of the needle. After emptying the abscess, the canula was allowed to remain, care being taken to

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prevent access of air by a valve of adhesive plaster. In a few days, the canula was removed and reintroduced an inch and a half from the point of the previous puncture, and again, as before, allowed to remain. After this, hepatic friction, which had previously been audible, disappeared, and the movements of the liver with respiration ceased, showing that adhesion had taken place. A free incision was then made between the two points at which the trocar had been introduced.

The advantage of the abdominal bandage, as a means of preventing motion of the liver and of holding it fixed, is sufficiently manifest and needs no special comment. Under such treatment, a patient should be kept absolutely quiet in bed. The proper treatment of the large abscess in the posterior part of the right lobe is a question of considerable doubt. In many cases, aspiration is the only resource. Should the abscess, however, be near the surface—and this can be ascertained by the depth to which the needle attached to an aspirator must be introduced before pus is reached—I believe that, in case the abscess has been aspirated and the sac has refilled, it would be wiser to make a free incision, even should it be necessary to exsect a portion of a rib in order to accomplish the drainage of the sac. A careful consideration of each case would be necessary, as, without proper precautions, the pleural sac would be opened.

The medical treatment must be directed to symptoms. Rest, a cool climate, and maintenance of the nutrition and strength of the patient, are the main points to be secured. The important point, however, is to provide an early and safe exit for the pus.

Since writing the above, I have met with two additional cases of liver-abscess. One of these was the case of a laborer, who was in the habit of lifting heavy weights, which he carried on his left shoulder, supporting them by the right hand carried over his head. The abscess was situated in the upper and right portion of the right lobe. The liver did not descend below the free border of the ribs, and it was adherent. The symptoms were, pain in the right shoulder and in the right side, loss of flesh and strength, with some febrile movement, and

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nocturnal perspiration. The case was referred to me by Dr. Fruitnight, of New York. Twenty-two ounces of a chocolate-colored liquid were removed by aspiration by Dr. Fruitnight, on November 29, 1884, through a puncture in the ninth intercostal space in the inferior axillary region. I had recommended this space because it was the point most tender on pressure, and, on exploratory puncture, pus was found two or three inches below the surface. The result of the case is still uncertain.

DISCUSSION.

Dr. Thomas F. Rochester, of Erie County.—I think the fact that no comments have been offered upon Dr. Janeway's paper should be accepted as complimentary rather than otherwise; and I rise only to express my thanks to the author, who has so thoroughly exhausted the subject of his paper that he has left no room for discussion.

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MEMBRANOUS CROUP; DIPHTHERITIC CROUP; TRUE CROUP.

By J. Lewis Smith, M. D., of New York County.

Read November 20, 1884.

The term pseudo-membranous laryngitis, laryngo-tracheitis, or true croup, is applied to a common and fatal disease, the essential anatomical character of which is inflammation of the larynx, or of the larynx and trachea, with the formation of a pseudo-membrane upon its surface. It occurs most frequently between the ages of two and twelve years, but infancy, after the age of six months, and early adult life are not exempt from it. For the sake of brevity, I shall use the term croup to indicate this form of inflammation, although I recognize another form of croup, the spasmodic or catarrhal, in which no pseudo-membrane occurs.

Ætiology.—Wherever diphtheria prevails as an endemic or epidemic, it is well known that a large majority of the cases of membranous croup are local manifestations of this disease; and this inflammation is, therefore, in such localities, commonly designated diphtheritic croup. Physicians have endeavored to discriminate between croup due to diphtheria and that dependent upon other causes; but, whatever be the cause, the anatomical characters, the clinical history, and the appropriate treatment are so nearly identical, that attempts to differentiate the disease when produced by other agencies than diphtheria from that due to diphtheria, have proved futile and unsatisfactory in localities where diphtheria occurs, except in a few instances, as, for

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example, when croup has been manifestly caused by swallowing or inhaling some irritating agent.

Inflammation of the laryngeal and tracheal surfaces, whatever be its cause, when it reaches a certain grade of severity, may be attended by the exudation of fibrin and the formation of a pseudo-membrane; but such a result more frequently occurs in the inflammation caused by diphtheria than in that produced by other agencies. In diphtheria, a moderate laryngo-tracheitis is attended by the pseudo-membranous formation.

The percentage of cases of diphtheria in which the larynx becomes implicated and croup occurs varies in different epidemics and in different seasons and localities. In epidemics of a mild type, the cases appear to be fewer in which the larynx is involved than in epidemics of a severe form. In New York the percentage is large. From December 1, 1875, to July, 1878, I preserved records of all the cases of diphtheria which came under my notice. The number was 104, and in twenty-five of these, or about one in four, croup occurred, producing the usual obstructive symptoms and constituting the chief source of danger. During the two and a half years embraced in these statistics, the disease was usually severe. In the last five years, amelioration has occurred in the type of diphtheria in this city, and the proportion of croup-cases has not been so large.

So commonly is membranous croup, when it occurs in a locality where diphtheria is endemic or epidemic, a local manifestation of diphtheria, that physicians come to regard every case of this disease of the larynx as produced by the diphtheritic poison. In New York, physicians recognize scarcely any other form of membranous croup. It is well, therefore, to briefly recall the evidences that croup, in a certain proportion of cases, results from causes other than diphtheria. The occurrence of croup in localities where diphtheria is unknown of course indicates the operation of some other agency than the diphtheritic poison. Thus, in 1842, before diphtheria was established in this country, Dr. John Ware, of Boston, published his well-known paper on croup; and in seventy-four of the seventy-five cases embraced in his statistics, the membranous exudation was

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present upon the faucial surface. The statistics relating to the introduction of diphtheria into New York city, and the recorded death-statistics of this city, have been annually published. The first death from diphtheria in this century, within the city limits, certified to by a physician, was that of a German woman, at 638 Hudson Street, on February 15, 1852. Two other fatal cases occurred in 1857, and since then the reported deaths from croup and diphtheria have been as follows:

YEAR.	Croup.	Diphtheria.	YEAR.	Croup.	Diphtheria.
1858.....	478	5	1867.....	338	251
1859.....	622	53	1868.....	342	276
1860.....	599	422	1869.....	483	328
1861.....	460	453	1870.....	421	308
1862.....	685	594	1871.....	466	238
1863.....	908	981	1872.....	675	446
1864.....	754	781	1873.....	732	1,151
1865.....	449	534	1874.....	594	1,665
1866.....	368	435	1875.....	758	2,329

Since 1875, weekly bulletins were issued instead of the annual reports.

Thus, in the first years after the introduction of diphtheria, the deaths attributed to croup so greatly outnumbered those of diphtheria (as in 1858, when five died of diphtheria and four hundred and seventy-eight of croup), that it is evident that most of the cases of croup in those years were attributable to other causes than diphtheria. Since, as I have stated, any inflammation of the surface of the larynx and trachea, if sufficiently intense, may produce a pseudo-membrane, croup may occur as a primary disease and as a complication of various maladies. According to my observations in New York city, the chief causes of croup, arranged in the order of frequency, would be about as follows: diphtheria, "taking cold," measles, pertussis, scarlatina, typhoid fever, and irritating inhalations. I have elsewhere related cases of scarlet fever of a severe type, in which a thin film of pseudo-membrane was found upon the surface of the larynx and trachea and there was no other lesion to indicate that diphtheria had supervened. The croup was, to appearances, caused by the scarlatinous and not by the diphtheritic

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poison. The following was a case in which croup was apparently idiopathic, produced by that common cause of inflammations of mucous surfaces; to wit, exposure to sudden atmospheric changes:

CASE.—At midnight, on October 22, 1884, I was summoned to a child, aged twenty-five months, who had been in the street until nearly nightfall, when the weather suddenly became much cooler and he was brought home. At 11.45 P. M., he awoke with a harsh voice and croupy cough, which alarmed the family. I found the axillary temperature normal, but the fauces were injected, and the diagnosis was made of spasmodic or catarrhal croup. Emesis was produced by sirup of ipecacuanha, and the croup-kettle and a mixture of potassium chlorate and ammonium chloride were ordered.

On the following day, he walked about the room and seemed better; but the inhalation of the vapor of lime from the croup-kettle was continued. At 7 P. M., the symptoms became aggravated, the cough was frequent and hoarse, temperature (axillary) 100⅕°, pulse 120, and respiration noisy. At the time of my visit, the post-clavicular, supra-sternal, infra-mammary, and epigastric regions were depressed with each inspiration, although only in a moderate degree; the face was flushed, and the fauces injected, but without pseudo-membrane. The aspect was now more serious on account of the increasing dyspnœa. The pulse was strong, and no pseudo-membrane was visible. The temperature in the groin was scarcely 100° Fahr. Emesis had been produced before my arrival, and, in the matter vomited, there was a pseudo-membrane with ragged edges, about one half an inch in length. Examined under the microscope within an hour, it was found to consist of fibrillæ, evidently fibrous, some of them wavy, and inclosing many pus-cells. Ten grains of calomel were placed on the tongue, and inhalation of the following was almost constantly employed by means of the steam atomizer:

℞ Liq. potassæ, ʒ ij;
Aq. calcis, ℥ xij.
Misce.

On the following day the respiration was easier, and within twenty hours the patient had so far convalesced as to be out of

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danger. There had been no case of diphtheria in the house, or recently, as far as I could learn, in the immediate neighborhood.

That this was a local disease, non-specific and quite distinct from the croup of diphtheria, can not, I think, be doubted.

In considering the ætiology of croup, and recognizing diphtheria as by far its most common cause wherever the latter disease prevails, an interesting theory is suggested, to which Heubner alludes, who affirms that inflammations, even with the characteristic membranous exudation, may be set up without the micrococci and that then inoculation by micrococci may occur and "induce the general disease" ("Die experimentelle Diphtherie," Leipzig, 1883, quoted in Ziegler's "Pathological Anatomy," New York, 1884, part ii, p. 249). The point alluded to is that inflammations arising from causes other than diphtheria now and then become intensified and are rendered more protracted and dangerous by the reception of the diphtheritic virus after the inflammations have become established. In support of this opinion, it is well known by all who have had much experience with diphtheria, that those surfaces are likely to be attacked by the specific inflammation which are already irritated or inflamed when diphtheria is contracted. Hence the occurrence of the pseudo-membrane on recent wounds, upon the eyelids in cases of catarrhal conjunctivitis, upon the uterine surface after parturition, and upon the laryngeal, tracheal, and bronchial surfaces, if they be already inflamed, as in measles.

Scarlatina is so often complicated with diphtheria, that there seems to be a close affinity between the two diseases. It is a very common observation in New York city, that scarlet fever continues two or three days in its usual form, when the symptoms become suddenly aggravated and the aspect of the disease more severe. On inspecting the fauces, a pseudo-membrane is discovered covering this region, and it generally appears also upon the nasal surface. Although severe scarlatinous inflammation may cause a fibrinous exudation, yet that diphtheria has supervened upon scarlet fever, in a considerable proportion of cases which have the above history, can not, I think, be

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doubted. In a few instances in my practice (four), the fact that scarlet fever was complicated with true diphtheria and that the scarlatinous inflammations, first in order, were intensified by the presence and influence of the diphtheritic poison, was shown by the occurrence of diphtheria without scarlet fever in other members of the family.

In accordance with the above law, we may assume that a child who has laryngo-tracheitis, which is so common from taking cold and is manifested by cough and hoarseness, is more likely to have diphtheritic croup than one whose air-passages are in their normal state when diphtheria begins. A supposed error of diagnosis is often made by physicians, always to their discredit, who diagnosticate catarrhal laryngitis, but who find, after two or three days, that their patients really have diphtheritic croup. A considerable number of such instances have come to my notice, always with the ill-will of families toward their physicians. Now, it seems to me that, in many of these cases, the physicians have been right in their first diagnosis, and that diphtheritic croup had supervened on the catarrhal inflammation.

Another point relating to the ætiology of diphtheritic croup requires notice. Many physicians who have had ample opportunities to observe diphtheria believe that the common way in which diphtheritic croup begins is as follows: The faucial or nasal surface is first affected, becoming covered by the pellicular exudation; and, during inspiration, detached particles of the pseudo-membrane containing the specific principle lodge in the larynx. At the point of inoculation, the specific inflammation arises and extends. This may be the manner in which the croup of diphtheria begins in certain cases; but this explanation certainly does not apply to a considerable number of patients. Thus, both the faucial and nasal pseudo-membranes may be treated, every second or third hour from the time of their formation, with the best disinfectants which we possess, so as to destroy all the micrococci, and yet croup not infrequently occurs during the progress of such a case. Again, in certain cases croup begins at the outset of the diphtheritic attack. The laryngitis

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occurs as early as the pharyngitis and therefore does not result from it. Sometimes the inflammation of the air-passages is the predominant lesion from the first, the pharyngitis being subordinate or even trivial. Thus a boy of two years and ten months, whom I attended, died of croup lasting about four days. He lived in the suburbs of the city, where the houses were scattered, and where there had been no recent diphtheria. The attack began with hoarseness, which gradually increased and was followed by a fatal obstruction in the air-passages. Close and repeated inspection of the fauces revealed only redness and some swelling of the parts, and the symptoms indicated only a slight coryza. The diphtheritic nature of the disease was rendered certain by the occurrence of diphtheria, in its usual form, in the two nurses, immediately after the death of the child. In this case, croup occurred at the beginning of the sickness, and it is evident from the history and the lesions that the contagium was not transferred to the larynx from any of the other surfaces. In view of the number of such cases, I see no propriety in assigning to diphtheritic croup a mode of origin different from that of other diphtheritic inflammations; but the possibility, and perhaps probability, in some instances, of an auto-infection, I do not deny.

Anatomical Characters.—It is important to acquaint ourselves with the anatomical characters of croup, especially the nature of the pseudo-membrane, so that we may know what measures to employ in order to remove it and to prevent, so far as possible, the laryngeal stenosis from which so many perish. The surfaces of the larynx, the trachea, and, in severe cases, the bronchial tubes, is hyperæmic and swollen, and the inflammatory action more or less involves the submucous connective tissue, causing infiltration or œdema. The relation of the exudation to the mucous surface varies according to the kind of epithelium present. Where the epithelium is of the flat or squamous variety, the fibrinous exudation from the blood-vessels is poured out around the epithelial cells, which perish. If the inflammation extend more deeply, the underlying connective tissue is also embraced in the coagulation and perishes. Professor Ziegler, of

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Tübingen, who has made repeated microscopic examinations of the pseudo-membrane, says: "It sometimes happens that the dead epithelial cells become saturated with the exuded liquid and then pass into a peculiar condition of rigidity akin to coagulation. The seat of this change appears to the naked eye as a dull, raised, grayish patch surrounded by red and swollen mucous membrane. The exudation is rich in albumen, and the transformed cells take on the appearance of a kind of coarse mesh-work, almost or altogether devoid of nuclei." This is superficial diphtheria; and Professor Ziegler next describes deep, or parenchymatous diphtheritis as follows: "It is characterized by the coagulation, not merely of the epithelium, but also of the underlying connective tissue. The affected patch is swollen and assumes a whitish or grayish tint, the discoloration extending through the epithelium to the connective-tissue structures. The epithelium in some cases is lost altogether, and then the diphtheritic patch consists of dead connective tissue only. . . . The dead tissue is separated from the living by a zone of cellular inflammation. Fibrinous filaments are seen here and there through the mass. The lymphatics in the neighborhood contain coagula and leucocytes."

Squamous epithelium covers the nostrils, the buccal cavity, the fauces, and the larynx upon and above the superior vocal cords, with the exception of its anterior aspect. The pseudo-membrane, therefore, upon all these surfaces lined with this form of epithelium, consists of the exudate from the blood, which surrounds and permeates the epithelium alone or the epithelium and the subjacent connective tissue. These two distinct elements, that poured out from the blood-vessels and the normal tissue of the mucous surface now dead, incorporated into one mass, therefore constitute the pseudo-membrane. Its intimate relation with the surrounding living tissue is such that we can not detach it without lacerating the latter and causing bleeding.

The anterior aspect of the larynx, from the middle of the epiglottis downward, all that part of the larynx below the superior vocal cords, the entire trachea, and the bronchial tubes, are lined

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by columnar epithelium. Wherever this variety of epithelium is present, the exudate from the blood does not become incorporated with the mucous membrane, but escapes to the surface and coagulates in a layer over it. It is therefore loosely adherent to the underlying tissues, being attached to it by fibrinous threads, and, when it is peeled off, the hyperæmic and swollen mucous membrane is seen beneath in its entirety, unless, as is commonly the case, a considerable part of its epithelium has been shed and been expectorated. The loose attachment of the pseudo-membrane in the trachea and bronchial tubes is of the greatest significance in its relation to tracheotomy.

I wish, in this connection, to call attention to the confusion which may occur in the use of the terms diphtheritic and croupous, as employed by pathologists, on the one hand, and clinical observers or practitioners, on the other. Pathologists, following Virchow, designate the inflammation as diphtheritic, when the epithelium and the underlying tissues remaining *in situ* are blended with the exudate and become a part of the pseudo-membrane, whatever may be the cause of the inflammation; and they call the inflammation croupous, whatever be its cause, when the exudate escapes to the surface of the mucous membrane, as in the trachea and bronchial tubes, and coagulates upon it. Therefore, in all cases of pseudo-membranous inflammation of the air-passages, even that due to "taking cold," or to inhalation of an irritating vapor, they term the laryngitis diphtheritic, because, in the larynx, the exudate is incorporated with the mucous membrane; while the pseudo-membranous tracheitis or bronchitis in the same patient is termed croupous, because the exudate lies on the surface. Practitioners, on the other hand, apply the term diphtheritic to all inflammations which occur as local manifestations of the specific disease known as diphtheria, and to such inflammations only, whatever may be their form, whether pseudo-membranous or catarrhal.

The epithelial cells embraced in the pseudo-membrane undergo a histological change. I have already referred to Ziegler's remark, that they are permeated by the exudate of the blood. Cornil and Ranvier say: "Wagner admits the fibrinous de-

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generation of the cells. . . . We have verified the description given by Wagner, but we would conclude that the cells are filled with a material which approaches mucin rather than fibrin."

In the first week, the pseudo-membrane forms more rapidly, is usually thicker and more extended, and produces dyspnœa more quickly, than when it forms in the declining stage of the disease. If the membrane be detached by the forcible coughing of the patient, it is usually reproduced promptly, unless the diphtheria be in its advanced stage and abating. If the croup continue from four to six days, the pseudo-membrane begins to soften and disintegrate from decomposition. The minute fibers which attach it to the membrane give way, and, in favorable cases, it is thrown off by the effort of coughing or vomiting. Separation is aided by the presence of muco-pus which collects beneath.

Symptoms.—Whenever croup is one of the local manifestations of diphtheria, such general or constitutional symptoms are present as pertain to this blood-disease; such as febrile movement, anorexia, thirst, and progressive loss of flesh and strength. The temperature in the beginning in croup from this cause is usually higher than at an advanced period, unless some complication occur, such as pneumonia, which increases the heat of the system. The temperature is not, however, in the beginning, ordinarily above 103° or 104°; and, as the croup continues and the systemic blood-poisoning becomes more marked, the temperature usually falls, so that, even in the gravest cases, it is often at or below 100°. Most patients also have certain inflammations which commonly attend diphtheria, such as pharyngitis and coryza, but they are relatively unimportant in comparison with the croup, for, unlike the croup, they do not in themselves involve immediate danger to life.

Croup commonly begins gradually and insidiously, and is first revealed to the physician by hoarseness or huskiness of the voice and a hoarse or harsh cough. Both voice and cough are feeble, lacking the fullness and sonorousness present in spasmodic laryngitis. In grave cases approaching a fatal termina-

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tion, the voice becomes more and more indistinct, and finally is suppressed. The cough also, which, in the beginning of the croup, was strong and expulsive, becomes feeble and ineffectual, and is less frequent as the fatal result draws near.

The quantity of sputum varies considerably in different cases. If the inflammation extend no farther downward than the trachea, it is scanty; but if there be co-existing bronchitis, it is more abundant, consisting of muco-pus with occasional flakes of pseudo-membrane. By vomiting, a larger quantity is expelled than by the cough. Occasionally, masses of pseudo-membrane of considerable size are expectorated, or even molds of some part of the respiratory passage, always with great temporary relief to the patient. A pseudo-membrane of considerable thickness and extent obstructs the expectoration of muco-pus, which, collecting in the lower part of the trachea and in the bronchial tubes, greatly increases the dyspnœa. The respiration is somewhat more frequent than in health, but it is not notably increased except when bronchitis or broncho-pneumonia is present. At an advanced stage, when stupor supervenes from non-oxygenation of the blood, the respirations may be slower than in health.

Croup, in its first stages and in the active period of diphtheria, seldom abates or remains stationary, without treatment. Little by little, or often quite rapidly, the laryngeal stenosis increases, and soon the patient begins to experience the want of air. He becomes restless, has an anxious expression of countenance, seeks change of position, and reaches out his arms to the mother or nurse to obtain relief. In some patients only a few hours elapse, and in others a day or more of gradual increase in the obstruction, when it becomes evident that death must soon occur unless relief be afforded. In this stage, the post-clavicular, infra-clavicular, supra-sternal, and infra-mammary regions are depressed during inspiration, and the larynx is drawn toward the sternum with each inspiratory act. While there is constant suffering, there are also most distressing occasional attacks of dyspnœa, attended with an increase in the lividity of the features and extremities, which now have a persistent

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dusky pallor. Sometimes these attacks are perhaps due to the doubling of a detached end of the pseudo-membrane on itself, or perhaps to a movement of the muco-pus, by which bronchial tubes are occluded. With the ear applied over the larynx or the upper part of the sternum, a loud rhonchus is heard, both on inspiration and expiration, produced by the passage of air over the obstruction, and obscuring to a great extent the other sounds. Moist bronchial râles are also common.

Those who recover from membranous croup by the use of inhalations and without tracheotomy (and thus far they constitute only a small minority of cases), usually improve gradually, the obstruction diminishing as portions of the pseudo-membrane soften and become detached, the cough becoming looser, and the voice less hoarse. After the detachment of the pseudo-membrane, several days elapse before the thickening and infiltration of the mucous membrane disappear and the epithelial cells are restored.

Diagnosis.—Catarrhal laryngitis, with an unusual degree of thickening and infiltration of the mucous membrane and the underlying connective tissue, so as to produce stenosis and obstruct respiration, may be mistaken for pseudo-membranous inflammation. In the New York Foundling Asylum, two children have at different times died with the symptoms of membranous laryngitis, and the obstruction was found to be due entirely to thickening and to infiltration of the mucous and submucous tissues of the larynx and trachea with newly-formed corpuscular elements. Of course, death from catarrhal laryngitis is rare; but that this disease may produce such a degree of laryngeal stenosis as to cause even fatal dyspnœa, like that from the presence of pseudo-membrane, these two cases show. In most instances, the differential diagnosis between membranous and catarrhal laryngitis is rendered easy by the presence of patches of pseudo-membrane on the fauces, or by the history of the case, which may evidently point to diphtheria as the cause. I have elsewhere alluded to a child in my practice, who died with the symptoms of acute laryngeal stenosis, without any pseudo-membrane upon visible parts and with only a moderate

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pharyngitis. This case, which might have passed as one of catarrhal laryngitis accompanied by an unusual amount of cellular and serous infiltration, as there was no known diphtheria in the vicinity, was really due to diphtheria, and was a local manifestation of that disease; for, immediately after the death of the patient, the two nurses had unequivocal symptoms of diphtheria. The difficulty in using the laryngoscope in young children is such, when their fauces are swollen, that it has not heretofore aided much in the differential diagnosis of the various forms of acute laryngeal stenosis in young children, at least when employed by the general practitioner.

Prognosis.—The mortality from croup obviously depends to a great extent on the prevalence and the type of diphtheria. From what has been stated above, it follows that croup is more frequent and more fatal in a grave form of diphtheria than in mild epidemics. In New York city, during the fifteen years ending with 1878, the percentage of recoveries was very small, both under medicinal treatment and tracheotomy. During this long period, surgeons, not saving more than from three to five per cent of their cases by tracheotomy, performed this operation reluctantly; but since 1878, the percentage of recoveries after tracheotomy has been much greater. The mortality from croup is greater, the younger the child; for the younger the age, the less the diameter of the air-passages, and the more quickly laryngeal stenosis results. The younger the child, also, the more difficult is the use of the proper remedies, and the less time is there for their use, before fatal dyspnœa occurs.

I have already said that croup appearing in the declining stage of diphtheria is less severe and more easily controlled or cured than when it occurs during the first stages. Much depends, also, upon whether the physician is summoned at the very beginning of the croup, and appropriate remedies are early and persistently employed. In many instances the friends do not take alarm, and the physician is not summoned until the disease is well under headway and there is not the requisite time for the action of inhalations. Obviously, also, croup, beyond all other

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diseases, requires faithful and intelligent nurses; for without the co-operation of such nurses night and day, in the care of the patient, the most judicious measures are often rendered inefficient.

Exact statistics are lacking to show what proportion of cases of croup recover under strictly medicinal treatment. If we regard as incipient croup those cases in which the voice becomes hoarse or harsh, but in which no dyspnœa occurs and the lungs are fully and normally inflated, a considerable proportion of cases of croup, I think more than fifty per cent in my practice, have recovered. There may be in these cases a catarrhal laryngitis, or there may be a thin film of pseudo-membrane upon the laryngeal surface, not sufficient to embarrass respiration. Slight laryngitis, therefore, occurring in the course of diphtheria, unaccompanied by any increase in temperature or change in the freedom or rhythm of respiration, the only symptom being a huskiness of the voice, if treated early and properly by inhalations, passes off in a few days, in a large proportion of cases. It possesses little importance, except that it might become, if neglected, the initial stage of croup. It is obviously improper, however, to consider this trivial form of laryngitis as membranous croup. In the statistics of croup, those cases only should be included in which the symptoms are so pronounced that it is evident that more or less laryngeal stenosis is present, although there may be no marked dyspnœa.

In determining the percentage of recoveries from croup, it is proper to arrange cases into two groups: 1st, cases which have received only medicinal treatment; 2d, cases in which tracheotomy has been performed. Having been in almost continuous practice, since diphtheria began in New York, in a section of the city where this disease has always been prevalent, and having witnessed all kinds of treatment—that by emetics, by depletion, by stimulation, by inhalation, and insufflation—it is my opinion that not more than one in eight has recovered under medicinal treatment, during this long period, of cases of croup which began in the first week of diphtheria and in which the symptoms were so pronounced as to indicate more or less laryn-

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geal stenosis. The exudation in the first week of diphtheria, or in its active period, occurs so rapidly and in such large quantity, that no one of the medicinal agents or of the modes of treatment which physicians commonly prescribe is sufficiently prompt in its action to prevent the formation of the pseudo-membrane to an extent that soon endangers life. I allude to what has hitherto been the result. Perhaps we may yet discover a mode of treatment that will more effectually control the formation of pseudo-membrane.

Croup occurring in the second or third week of diphtheria, being attended with less abundant and less rapid exudation than when it occurs during the acute stage, can be more successfully treated under the persevering use of solvent inhalations; and, according to my observations, a larger proportion than one in eight, perhaps one in three, recovers by the early and continuous, or almost continuous, use of inhalations. Still, the mortality is so large and the suffering so great in croup, at whatever stage of diphtheria it occurs, that we can not rely upon the slow action of medicines or inhalations, and surgical treatment is in most instances required to diminish the suffering and afford the best chance for saving life. Tubing the larynx, to which I shall allude hereafter, has been so seldom performed, and the statistics of it are so meager, that I am unable to state what proportion of patients may be saved by it. I have twice observed, in the New York Foundling Asylum, prompt relief from tubage, when the dyspnœa was so great as to immediately endanger life. In one of the two patients, the relief was temporary, and in the other it was permanent. If the obstruction were confined to the larynx, or to the larynx and the upper part of the trachea, tubage would, I think, come into general use as a substitute for tracheotomy; but, unfortunately, it fails to give relief and save life in the many cases in which the obstruction extends throughout the trachea and into the bronchial tubes. The statistics of tracheotomy, on the other hand, are abundant; and we are enabled, therefore, to determine to what extent it can rescue the victims of this disease from impending death.

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I have examined the recent statistics of tracheotomy in cases of croup, published in the Continental journals, which give results obtained from twenty-six different sources; and I find an average of about thirty-three per cent of recoveries following the operation. The cases embraced in these statistics, which number several thousand, occurred chiefly in the clinics and hospitals of France and Germany.

Professor Abraham Jacobi probably has performed tracheotomy for croup as often as any other physician or surgeon in this country, not less, he thinks, than 400 times. His opinion corresponds with the common belief that, during the last five years, the percentage of recoveries after tracheotomy in the city of New York has been much larger than in previous years, and that the operation is now performed more frequently by the attending physician. The result of tracheotomy during a long series of years, ending with 1878 or 1879, was so unfavorable, on account of the type of the disease, that Dr. Jacobi thinks that, in the aggregate of his cases of tracheotomy since 1858, only about 12 per cent recovered.

Although at present, in the city of New York, the proportion of recoveries after tracheotomy is much larger than it was formerly, the statistics of some of the prominent physicians and surgeons show nearly as large a percentage of deaths as in former years, probably because the operation has been deferred until the patients were nearly moribund. Thus, one surgeon records only four recoveries in twenty-one operations during the last three or four years; and a physician of large experience, connected with one of the institutions where children are treated, has been equally unsuccessful in his tracheotomies, but he operated only when the dyspnœa was extreme and when death was momentarily expected. Earlier operations might have given better results.

The statistics of recent tracheotomies which seem to me to indicate most accurately the results of this operation when performed skillfully and not at too late a stage in the type of diphtheria now prevailing in New York, I have obtained from Drs. J. H. Ripley and Fred. Lange. The operations embraced in

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their statistics were performed since January 1, 1879, with the following results:

TRACHEOTOMIES.	Deaths.	Recoveries.	Per cent of recoveries.
66	44	22	33⅓

These surgeons do not select cases for the operation, but they operate on nearly every patient with croup to whom they are summoned, provided that death seems inevitable without tracheotomy. They operate even if serious complications be present, such as nephritis or pneumonia, or if the blood be profoundly poisoned. With them, the inducement to operate is sufficient if tracheotomy will diminish the suffering or increase the chances of recovery, in however trifling a degree. Inasmuch, therefore, as they do not select cases, so good a result is noteworthy.

Some physicians in New York use greater discrimination in selecting cases, and they do not operate if the condition of the patient be such that death will in all probability occur after tracheotomy. They do not, therefore, advise the operation if the patient have profound blood-poisoning, or severe local disease elsewhere. Such physicians, by the early performance of tracheotomy and by careful attention to the after-treatment, making frequent visits and supervising the details of the management, furnish more favorable statistics of the operation than any of those published above. Thus, Dr. A. R. Robinson, who makes such discrimination in cases, who operates early and does not insert the canula until all the loose muco-pus and shreds of pseudo-membrane have been expelled by the cough from the trachea and bronchial tubes, and who supervises by frequent visits the after-management, has saved, since 1880, eleven out of thirteen consecutive cases of undoubted membranous croup. It is seen, from the above statistics, that we can claim for tracheotomy, when performed judiciously and at a sufficiently early stage, the cure of one in every three patients in the average. The statistics in Boston show that the results obtained in that

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city in hospital practice have been about the same as those in New York and in European cities. In an interesting paper on tracheotomy in croup, published in the "Medical News," Philadelphia, July 12, 1884, the writer says: "Tracheotomy for this disease has been performed one hundred and eighteen times at the Boston City Hospital during the past twenty years. Thirty-nine, or one in three, were successful. That the cases were not selected, is shown by the fact that three patients died during the operation, from shock and exhaustion, not from hæmorrhage; thirty-four died within twenty-four hours; and fifty-six, or more than one half of the fatal cases, within forty-eight hours. Four, if not five, of the successful cases were practically moribund at the time of the operation. . . .

"The ages of these patients ranged from nine months to forty-one years. The youngest to recover was eleven months; the oldest sixteen years. Four aged two years, and five aged three years got well.

"Membrane was visible in the fauces or trachea in a large proportion of both the successful and unsuccessful cases. Its absence was noticed in only three of each class. It need not be said that in every instance there was present severe, constant, and increasing dyspœna, exhausting the strength and threatening suffocation."

Preventive Treatment.—In attending a case of diphtheria, the physician should notice at each visit whether the patient have hoarseness or any other signs indicating implication of the larynx, since, if the danger be recognized at its inception, it may possibly be averted. Ineffectual as inhalations may be in fully-declared croup, we have seen, in speaking of the prognosis, that experience fully justifies the belief that they are sufficient, in a large proportion of cases, to relieve that degree of laryngitis which is indicated by simple hoarseness, and which, should it continue, might eventuate in serious obstructive disease. If the physician observe such symptoms, he should immediately recommend that the air in the apartment be kept moist by the croup-kettle or by pans of hot water over the fire, into either of which a lump of lime has been placed. I frequently surround the bed with a

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tent made with a clothes-horse, over which blankets are thrown, and place the croup-kettle beneath. Frequent stirring of the water adds to the efficiency of this measure. I prefer, however, in most instances, to employ the steam atomizer either with or without the croup-kettle. It should be so constructed as to throw a heavy spray of rather turbid lime-water, and should be almost continuously used, so long as the premonitory symptoms of croup persist. This obviates the necessity of heating the apartment, which in warm weather is very uncomfortable.

It is proper in this connection to consider which is the most efficient and the best agent for inhalation in croup. Have we an agent that can be safely used, which will prevent, when inhaled, the formation of the pseudo-membrane, or which will dissolve it when it has already formed? The agents which have been most employed for this purpose are lime-water, lactic acid, pepsin, and bromine. In selecting the one that is safest and most efficient, the important fact should be borne in mind, that anything which irritates, so as to increase the inflammation of the mucous surface, is injurious. Whatever intensifies the inflammation, evidently augments the thickening and infiltration of the mucous membrane and increases the area as well as the thickness of the pseudo-membrane; and it is therefore harmful instead of beneficial. In my opinion, the teachings of Bretonneau and of Trousseau did immense harm in the fact that they brought into use agents far too irritating to the sensitive mucous surface. Since the pressing danger in croup arises from the obstruction produced by the pseudo-membrane and by the thickening and infiltration of the mucous membrane underneath, that agent is indicated, if it can be found, which loosens and dissolves the pseudo-membrane and at the same time tends to diminish or at least does not increase the inflammation of the underlying tissues by its irritating action. Alkalies exert a solvent action on fibrin and mucin; and, as the pseudo-membrane consists of an exudate from the blood which is largely fibrinous, and of epithelium and connective tissue which have undergone degeneration into a substance resembling fibrin (Wagner) or perhaps mucin (Cornil and Ranvier), their employment seems

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to rest on a sound therapeutic basis. Lime-water slightly turbid, but not so turbid as to clog the point of the steam atomizer, and containing about one and a half per cent of liquor potassæ, is probably as efficient and useful a solvent as any of the alkaline mixtures. One and a half per cent of liquor potassæ becomes about one per cent when mixed with steam from the boiler. By the persistent and timely use of such inhalations as soon as hoarseness appears, croup can, in my own opinion, be often prevented; but we all know how often, notwithstanding our best endeavors, croup occurring in the first week of diphtheria hourly grows worse. In these acute and rapid cases, inhalations of the best agents which physicians have hitherto used act too slowly to prevent the growth of the pseudo-membrane, and in a few hours it becomes painfully evident that something more must be done or the life of the child will be lost. In the many cases in which diphtheria is ushered in with croupous symptoms, and in which, within a few hours, laryngeal stenosis begins, the experienced physician sees at a glance, often at his first visit, that inhalations, however faithfully employed, will be inadequate, and that suffocation, the most painful of all modes of death, will be inevitable, unless other and more energetic measures be employed. On the other hand, in the milder forms of croup, in which the exudation has but moderate thickness and forms slowly, inhalations are of the greatest service, and, aided by internal remedies, they not infrequently arrest the disease and save life. The following was such a case:

Case.—M. J., a girl, two years and five months of age, took diphtheria on January 6, 1884. I first saw her on the 9th, when a considerable quantity of pseudo-membrane covered the fauces. The temperature was but moderately raised, and a slight discharge occurred from the nostrils. Under the usual treatment, the pharyngitis abated, and the patient seemed to be convalescing until January 14th, when her respiration began to be noisy and embarrassed. On inspecting the fauces, a pseudo-membrane was seen upon the glottis, apparently dipping down into the larynx. The steam atomizer was employed almost constantly, throwing a spray of lime-water with about one per cent of liquor potassæ. Each in-

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spiration was accompanied with marked depression of the post-clavicular, epigastric, and infra-mammary regions, and the respiration was noisy and embarrassed until the 17th, when it gradually improved, and the patient was soon out of danger.

It will be observed that the croup began in the second week, or in the declining stage of diphtheria. Had it been earlier, when the inflammation was more active and the exudation more rapid, in all probability the patient would have perished unless saved by tracheotomy. The slowness of the exudative process afforded time for the action of solvent inhalations.

Nearly at the same time that this case occurred, a patient in my practice, who had recovered from croup after tracheotomy, was seized with dyspnœa a month after the operation, when the opening had healed. A flapping sound could be distinctly heard, produced probably by a pseudo-membrane which was partially detached. This obstruction, which for a time apparently involved great danger from dyspnœa, was removed by the third day under alkaline inhalations.

In such cases, in which the inflammation is mild and the exudation at a stand-still or slow, the benefit from inhalations is most apparent. I am confident that one good result from alkaline inhalations is not fully appreciated by the profession. I refer to the fact that they render the muco-pus, which collects in large quantity in the bronchial tubes and is expectorated with difficulty on account of its viscidity and the obstacle above it, thinner and more easily expelled.

Now that diphtheria has become so prevalent in this country, and that so many children die of diphtheritic croup which it produces, it is to be hoped that some substance may be discovered for inhalation, which will be unirritating and at the same time more efficient than those at present in use. Since my attention has been called, by Dr. Van Syckel, of New York, to the fact that trypsine, one of the digestive ferments secreted by the pancreas, is a vigorous solvent of fibrin, he having observed its action in the laboratory of Professor Kühne, of Heidelberg, I have employed this agent in the usual form of diphtheria in several instances, with such results as to encourage the hope that the

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solvent which we have so long needed has at last been found. Whether the good effect were due to the trypsine contained in the extract, to the alkali, or to the combination of the two, I certainly have never seen pseudo-membranes disappear from the fauces more rapidly than in cases in which the following mixture was applied, every half-hour, with a large camel's-hair pencil:

> Extracti pancreatis (Fairchild's), ʒ j ;
> Sodii bicarbonat., ʒ iij. M.
> Add one teaspoonful of this to six teaspoonfuls of tepid water.

Recently, in a child of about five years, a thick pseudo-membrane over each tonsil disappeared by the third day, without apparently any irritating effect from the application. Mr. Fairchild has lately prepared trypsine in a liquid form, in order that its efficacy as a solvent for the membranes in croup may be more readily and conveniently tested; and Dr. H. D. Chapin informs me that this liquid employed in spray quickly dissolved the pseudo-membrane *in situ* upon the larynx removed from an infant that perished from this disease. Additional clinical observations will soon determine the value of trypsine as a solvent, and whether, if it be a good solvent, it can be utilized as a spray. That it requires an alkaline medium for its activity, renders it compatible with alkaline inhalations.

Internal Treatment—Calomel.—This was long regarded as the most important internal remedy for membranous croup as well as for diphtheritic exudations elsewhere. In the belief that it had a tendency to prevent the formation of pseudo-membranes, and that it aided in detaching and removing those already formed, it was in common use until about twenty-five years ago. It was sometimes prescribed for croup in large doses, but more frequently in doses of one half, one, or one and a half grains, repeated every second or third hour, and often in combination with an opiate, such as Dover's powder. However useful a remedy it may be when judiciously employed in croup as well as in certain other diseases, it fell into disuse on account of its ill-advised use in diseases which did not require it, and

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its employment often to the extent of producing unpleasant and even dangerous symptoms. When diphtheria was established in this country, calomel was in a few years discarded by most physicians as a remedy for croup, on account of the growing belief that nearly all cases of this disease were local manifestations of diphtheria and required less depressing and more sustaining measures than the use of mercury. Moreover, it was easy to point out cases in the writings of such masters in the profession as Bretonneau and Trousseau, in which calomel was improperly employed, doing harm by causing, not only severe salivation, but gangrene. Nevertheless, cases occurred in those days which seemed to show that this agent, properly employed, is a potent and useful remedy for croup. One in the Astor House, of New York, attracted much attention. A child of about two years, in this hotel, had pseudo-membranous laryngitis, with constant and increasing dyspnœa. Prominent physicians in attendance expressed the opinion that he could not live, when, through the advice of a physician from an inland city who was temporarily in the hotel, twenty grains of calomel were placed on his tongue. From this time the dyspnœa began to abate, and the patient recovered.

The medical journals from time to time contain reports of cases of croup in which calomel has apparently been beneficial. In the "Medical Record," New York, July 12, 1884, Dr. J. P. Klingensmith, of Blairsville, Pennsylvania, states that physicians in his locality prescribe calomel in large doses for croup with greater success than that achieved by other modes of treatment; and he relates three cases, of which the following is an abstract, showing the results in his own practice:

Case.—A child, aged twenty-eight months, took twenty grains of calomel placed on the tongue in the beginning of croup, and afterward, ten grains every hour until the third day, when seven hundred and twenty grains had been taken. The remedy was then discontinued, and on the sixth day the pseudo-membrane had disappeared. Recovery was rapid, without any untoward symptoms.

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CASE.—The second patient, aged three and a half years, had been ill forty-eight hours, with a temperature of 102° Fahr. He had a croupy cough, with a pseudo-membranous exudation. Twenty grains of calomel were given, and afterward ten grains every hour for fifteen hours, so that one hundred and seventy grains in all were administered. The child, who had previously been restless, fell into a quiet, natural sleep. The calomel was discontinued, and a mixture of potassium chlorate and ammonium chloride was given in its place. On the fifth day, convalescence was fully established, without any unfavorable symptoms.

CASE.—The third patient, a girl of four years, had been ill twenty-four hours, with "high temperature, painful croupy cough, labored respiration, dry skin, flushed face, and some diphtheritic exudation." Twenty grains of calomel were administered, and followed by hourly ten-grain doses, until twelve doses had been given. No other remedy was employed, and in three or four days the patient recovered.

These appear to have been genuine cases; and the fact that they recovered tends to confirm the belief that calomel does exert a beneficial action on pseudo-membranous inflammations, either diminishing the exudation or promoting the liquefaction and detachment of the pseudo-membrane. A mode of treatment commonly accepted and practiced by the profession through a long series of years usually does some good, in at least a certain proportion of cases, even if it be abused, else it would not have been likely to gain general acceptance. We know how quickly calomel cures the mucous patches of syphilis, even when they are of large size. These are produced by inflammatory changes in the tegumentary system, and they consist largely of epithelial, or epidermic cells. They therefore contain elements similar to the pseudo-membrane in croup, but without the fibrin. We know, also, how readily fibrinous opacities on the cornea yield to calomel dusted on them. We may admit that calomel probably exerts a salutary action either on the exudative process or on the pseudo-membrane, without being able to state precisely how it operates. Bouchut says of calomel, in his article on croup: "This medicine promotes the expectoration and the rejection

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of the false membrane." Trousseau believed that the beneficial effects of mercurial preparations were due mainly to their local action. He states that "wherever they can be applied locally" they "modify most powerfully the diphtheritic inflammation." He dusted the inflamed surface, if accessible, with calomel, or with a powder of the red precipitate, one part to twelve of pulverized sugar. The use of the mercurial collar for the neck in the treatment of croup, employed and recommended by Bretonneau, is familiar to those who have read his memoirs. Professor Jacobi, also, who has probably given more attention to diphtheria than any other physician in America, apparently believes that mercury used locally is beneficial in croup, for he has recently recommended inunction with the oleate of mercury upon the neck, whenever the bichloride of mercury administered internally has disagreed. It has seemed to me that one or two large doses of calomel administered in the beginning of croup, when there is no decided cachexia, exerts a beneficial action on the course of the disease, as in the following instance:

CASE.—R., male, aged three years, began to be croupy, but without any marked impairment of the voice, on November 7, 1884. The mother states that he has had sore throat nearly one week, without medical attendance. He began to be croupy on November 7th, and his respiration gradually became more noisy and difficult until the evening of the 8th, when I was called to see him.

His temperature was 99°. The dyspnœa was such that the post-clavicular, supra-sternal, and infra-mammary regions were depressed with inspiration, and his breathing was noisy, but the voice had nearly the usual clearness. The fauces, though red, were not notably swollen, and a pseudo-membranous patch of the size of the nail of the little finger lay over the right tonsil. The diagnosis was therefore made of mild diphtheria, but with dangerous laryngeal stenosis, probably from the presence of a pseudo-membrane. The general condition of the child was good. Six grains of calomel were placed on the tongue, and inhalation was ordered by the steam atomizer of the following:

Liquor potassæ, ʒ j;
Aquæ calcis, Oj.

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The record of November 10th states: Resp. 38 per minute, still noisy, but no increase of dyspnœa; pulse 126; temperature in the groin, 99⅘°; slight discharge from the nostrils; uses the inhalation almost constantly. From this date, the pseudo-membrane and the redness of the fauces gradually disappeared, and two days later, the patient was out of danger.

The results of the treatment of diphtheria and of the inflammations which accompany diphtheria are liable to produce an erroneous opinion with regard to the value of therapeutic agents, since cases differ so greatly in type and severity; but the experience of many physicians justifies the belief that mercury, and especially calomel, employed within certain limits at the beginning of a pseudo-membranous inflammation, exerts some controlling action on this disease. That it did much harm formerly, when physicians prescribed it as freely as we now employ potassium chlorate, to the extent, in many instances, of increasing the cachexia and causing mercurialism, should not deter us from its judicious use. In the ordinary form of diphtheria, I should not advise the use of calomel, or I should limit its employment to one or two doses of from six to ten grains at the outset of the disease in robust cases; but in croup, since the danger is not from the cachexia or blood-poisoning so much as from the laryngeal stenosis, which is apt to develop rapidly, that remedy is indicated and should be prescribed, which most strongly retards the exudative process, and which aids in liquefying and removing the pseudo-membrane; provided, always, that it produces no deleterious effect which renders its use inadmissible. Hence, it is proper to prescribe calomel in larger doses and for a longer time in the treatment of croup than in other forms of membranous inflammation, if it fulfill the indications, as it seems in a measure to do. In my own practice, however, calomel is not prescribed after the first or the second day, since I prefer the use of other remedial measures, which are equally efficient and are less likely to produce injurious effects.

Emetics.—These have been largely used in all forms of croup, and in catarrhal or spasmodic croup they usually produce marked

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relief. Formerly emetics were much employed in the treatment of membranous croup; but now that diphtheria has spread throughout the country, and that most cases of this form of croup occur in patients suffering from diphtheritic blood-poisoning, depressing emetics, such as ipecacuanha and antimony, have fallen into disuse, since they have been found to be badly tolerated. In my practice, a child of ten years with severe diphtheria and with beginning croupy symptoms sank rapidly and died, between two of my visits, from exhaustion produced by a single large dose of ipecacuanha administered by anxious parents without my advice.

An emetic, however, gives partial relief in certain cases to the dyspnœa, since it expels muco-pus which blocks up the tubes below the pseudo-membranes, and sometimes expels portions of pseudo-membrane which are easily detached. If an emetic be employed, one should be selected which acts promptly and produces but little depression; and as a rule it should, I think, be used only at the beginning of croup. If, after the initial period, there be that degree of dyspnœa which suggests its use, tracheotomy is preferable, as more likely to give relief and save the patient. Of the emetics which are admissible at the beginning of croup, sulphate of copper is one of the best. Several years ago, in one case, in which I found, at my first visit, dyspnœa, croupy cough, and a pseudo-membrane over each tonsil, and in which I had made an unfavorable prognosis, the parents, observing the good effects of two grains of sulphate of copper, repeated the dose every two or four hours until the following day, and the patient recovered. Such a result, however, I regard as exceptional. Probably, in ordinary cases, the best emetic is the yellow sulphate of mercury, or turpeth mineral, in a powder of two or three grains. The use of this emetic in croup was prominently brought to the notice of the profession by Professor Fordyce Barker, who administered this agent immediately after being summoned to a case, as he alleges, with remarkable benefit to his patient. It has, however, been recently stated, on apparently good authority, that turpeth mineral, when it enters the stomach, although it causes vomiting, is not itself ejected

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except in small quantity, so that a considerable share of its action, like that of calomel, may be through its absorption.

Internal Disinfectants, or Germicides.—The theory which happens to prevail regarding the nature of a disease necessarily influences the treatment. It is now commonly believed that diphtheria is produced by bacteria; and therefore the use of agents which are destructive to micro-organisms is at once suggested as the proper treatment for diphtheria and for the inflammations to which the specific principle of diphtheria gives rise. Hence, sodium sulphite, sodium sulpho-carbolate, the phenic acid of Déclat, and preparations of chlorine, have been administered internally in the treatment of diphtheria; but whether they produce better results than iron and potassium chlorate is doubtful.

Attention is now drawn to the bichloride of mercury, which, by common consent, is admitted to be more destructive to micro-organisms, when employed locally, than any other agent that can safely be used. Physicians in search of a remedy that would destroy micrococci in the system and thus remove the cause of diphtheria were naturally led to make trial of this agent, in the hope that an antidote or a specific had been found. If the bichloride can be safely administered in doses sufficiently large, there is every reason to suppose that it will destroy microbes in the interior of the body as well as upon its surface. If clinical experience show that it can be used in such doses without poisonous effect, it deserves recognition as a specific for diphtheria. If, without injury to the patient, it act promptly enough to kill the microbe before serious organic changes have occurred in the organs, such as granulo-fatty degeneration of the muscular fibers of the heart or nephritis, it would save many lives and become as important a remedy for diphtheria as is quinine for diseases produced by marsh-miasm. But unfortunately we have to deal with an agent long recognized as a deadly poison; and it is a problem yet to be solved, whether it would not destroy the patient if employed in doses sufficient to destroy the micrococci. A strong argument in favor of this use of the bichloride was presented to the profession by Dr. Thallon, of

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Brooklyn, in two papers published in the "New York Medical Journal," April, 1884. His argument was substantially as follows:

It has been shown that the bichloride of mercury destroys the bacteria in a liquid of 20,000 times its weight. Now, if 20,000 grains of blood be disinfected by one grain of the bichloride, 7,000 grains, or one pound, would be disinfected by one third of a grain. Professor Flint, Jr., states that, although the proportionate quantity of blood in the system varies in different individuals, it may be assumed, in the average, to be in the proportion of one to eight of the entire weight of the body. Therefore, one grain of the bichloride would destroy the microbes and disinfect the blood in a child weighing twenty-four pounds, and two grains, in one weighing forty-eight pounds. But if the bichloride can be safely administered to a child in such doses that its system contains one or two grains, it must be remembered that, in diphtheritic systemic poisoning, micrococci occur in the lymphatics and in the tissues, and therefore a considerably larger quantity of the bichloride is necessary, in order to produce complete disinfection, than that which is required to disinfect the blood. But whether or not the bichloride, administered internally, is a safe, efficient, and proper remedy for diphtheria, must be determined by experience. If it be shown to be such by clinical observations, it should, of course, be administered in all cases, whatever be the seat of the inflammation. It should be administered in the croup of diphtheria; for, if we remove the cause, the inflammations will abate or they can be successfully treated.

A considerable number of observations have been made during the last year, which show that adults do not tolerate large doses of the bichloride. Thus, one twentieth of a grain administered hourly to an adult with phthisis, until seven or eight doses had been given each day, caused bloody diarrhœa at the close of the third day, when about one grain had been taken. The same result followed in another adult, after one twentieth of a grain had been administered every second hour in the daytime only, for four days. In a third patient, one

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twentieth of a grain given hourly in the daytime for five days caused profuse salivation and pain in the gums. A fourth adult patient took one thirty-second of a grain hourly for eleven hours, and then one twenty-sixth of a grain for seven hours, when griping pain in the abdomen occurred, with liquid stools. (Dr. A. H. Smith.) One adult case only is related in the experience of Dr. Smith, in which no ill effects followed the administration of the bichloride in doses of one twentieth of a grain, although it was administered hourly in the daytime for eight days. Cases might be mentioned in the practice of other physicians, showing that the bichloride is a dangerous remedy if given in germicide-doses in the treatment of adults. In one instance in my practice, bloody diarrhœa occurred on the fourth day from the intra-uterine douche used three or four times daily, and fatal cases have been announced in the journals from the same cause. Children, however, seem to tolerate the bichloride better than adults, as they do in the case of arsenic. It has been largely used during the last year in New York as a remedy for diphtheria, and especially for diphtheritic croup; and physicians of experience state that more patients have recovered from croup, under treatment with the bichloride, than under any other medication which they had previously employed. The following brief statement of the effects of the bichloride-treatment in diphtheria and croup, in a few cases in my own experience and in the practice of Drs. Thallon, Armor, Skene, and Jacobi, will aid us in understanding the therapeutic value of this agent in pseudo-membranous inflammations:

Cases.—A child of six and a half years, having diphtheria after scarlet fever, took gr. $\frac{1}{75}$ hourly, most of the time for one week, and subsequently the same dose hourly in the daytime and two or three times at night, with no unfavorable symptoms; but the quantity of the urine was increased to 70 ounces. A child of four years, having croup complicating diphtheria, with urgent symptoms, took gr. $\frac{1}{40}$ of the bichloride every hour and a half to three hours. In five and a half days, she took more than two grains, and in one day, more than half a grain. Portions of the pseudo-membrane were expectorated, and the patient recovered.

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There were no unfavorable symptoms attributable to the bichloride.

Of five children who recovered from the ordinary form of diphtheria, reported by different observers, one, aged nine years, took gr. $\frac{1}{10}$ every one and a half hours, and in one day, nearly half a grain, until the fifth day, when a little more than two grains had been taken. The second child, also aged nine years, took nearly one half-grain of the bichloride in the first twenty-four hours, and in two days, three quarters of a grain. The third patient, aged four and a half years, took gr. $\frac{1}{10}$ of the bichloride every two hours on the first day, and afterward, at longer intervals. In the fourth case, a child of seven and a half years, gr. $\frac{1}{10}$ was given every two hours, for how long it is not stated, but the membrane became less on the second day. The fifth patient, aged two years and five months, had a hoarse, whispering voice, noisy (guttural) respiration, and a temperature of 105° Fahr. The pseudo-membrane appeared in considerable quantity over the tonsils at the close of the second day. The bichloride, gr. $\frac{1}{10}$, was given every second hour, alternately with six minims of the tincture of the chloride of iron. Alkaline inhalations were constantly used, and one teaspoonful of brandy was given every two hours. The bichloride was administered for three days with no appreciable ill effect and with gradual improvement of the patient.

Although, during the last few months, the bichloride has been largely used as a remedy for diphtheria and pseudo-membranous croup, in doses like those employed in the foregoing cases, but few instances have been published in which it seemed to disagree. It has, however, in some patients, caused diarrhœa, and, apparently, colicky pains, as in adults, so that it was deemed advisable to discontinue its use. According to my observation, it does not save life or materially mitigate the intensity of the disease or the inflammations, if profound blood-poisoning, or grave complications, such as nephritis, have occurred when its employment is begun.

The following cases, among others which have come under my observation, show that the bichloride, if administered in grave cases at a late stage, is powerless to save life:

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A child of three and a half years, with malignant diphtheria, took at first the ordinary remedies, such as iron and potassium chlorate, and, when the urine had become heavily albuminous and the fauces were much swollen and covered with a dense and foul pseudo-membrane, the bichloride was prescribed in hourly doses of gr. $\frac{1}{48}$. Two days later, death occurred, apparently from blood-poisoning. Another patient of the same age, with nearly the same history, lived four days under the bichloride-treatment. Perhaps better results might have followed an earlier use of the remedy.

Clinical observations will soon determine the actual value of the bichloride in the treatment of diphtheria and diphtheritic inflammations, and, if it be a safe and useful remedy, whether its beneficial effects are due to its germicide action or to the same therapeutic effects as those obtained from other mercurial agents. It may be conveniently prescribed in the following formulæ, recommended by Pepper and Thallon:

℞ Hydrarg. bichlor., gr. ss.;
Tinc. ferri chloridi, f ʒ iij;
Glycerinæ, f ℥ ss.;
Aquæ, q. s. ad f ℥ iij.
Misce.

One teaspoonful every hour to two hours.

℞ Hydrarg. bichlor., gr. ss.;
Elix. bismuthi,
Vini pepsini, āā ℥ jss.
Misce.

One teaspoonful every hour to two hours.

It does not seem necessary or prudent in ordinary cases to continue the use of the bichloride in large and frequent doses for more than three or four days.

Since membranous croup in localities where diphtheria prevails is, in most instances, a local manifestation of this disease, the same sustaining general treatment is required which is proper in ordinary cases of diphtheria. The tincture of the

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chloride of iron administered every second hour in liberal doses, potassium chlorate, quinine, and brandy or other forms of alcohol in large and frequent doses, long used in diphtheria as tonics and blood-restorers, are indicated. Remedies of this kind may be given, alternating with those already described, which are designed to correct the exudation-process and aid in removing the laryngeal obstruction. The diet should be nutritious and easily digested, consisting largely of milk and the meat-teas. For patients with poor appetite and feeble digestion, peptonized milk and the peptonized meat-juices may often be advantageously prescribed.

Surgical Treatment.—Although the best possible treatment by inhalations and internal medication may have been employed early and without intermission, it is the common experience in all countries that such treatment is, in a large proportion of cases, inadequate, and that many perish from suffocation unless relieved by surgical interference. I have already stated that if croup occur at the beginning of diphtheria, when the exudative process is active and the pseudo-membranes form rapidly and abundantly, death is the common result, if only medicinal treatment be employed; but if the inflammation be less intense or subacute, as in the second week of diphtheria, so that there is more time for the action of medicines and inhalations, and if, as is sometimes the case, the stenosis appear to be at a stand-still without any marked suffering from want of air, a resort to surgical measures may be judiciously postponed.

The indications for surgical interference are, a gradual increase of the stenosis and the consequent dyspnœa, notwithstanding the constant and judicious use of remedial agents, and a manifest suffering from want of air as shown by restlessness of the child and the expression of suffering in his features, with or without lividity of the surface. We adults may have some faint conception of the suffering which children with acute laryngeal stenosis undergo, when we have severe nasal catarrh and attempt to breathe with the mouth closed; and the paramount duty of the physician, which is to relieve suffering, should prompt us to resort to other measures when medicines prove inadequate, even

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if we leave out of account the important object of saving life. When, therefore, membranous croup is found to be progressive, after having been observed and properly treated for from six to twenty-four hours, and when the child begins to suffer from want of air, the propriety of surgical interference should be considered.

Tubage.—In 1858, Bouchut published a paper in the "Moniteur des hôpitaux," on a new method of treating croup by tubage of the larynx. He employed a straight, cylindrical tube, nearly an inch long. The tube was introduced by means of a male catheter open at both ends. Tubage excited some attention and discussion at the time in the Parisian capital, and M. Gros related an instance of its successful employment. It was found, in experiments on animals, that the tube caused ulcerations; and as it did not afford the relief which commonly follows tracheotomy, and was discountenanced by Trousseau, Barthez, and others, it fell into disuse, and was abandoned as a substitute for tracheotomy, even by those who at first warmly advocated it. Recently, Dr. O'Dwyer, of the New York Foundling Asylum, has devised a tube of about the same length, but differing from that of Bouchut in having a greater antero-posterior than lateral diameter and therefore conforming to the shape of the laryngeal aperture. The left index-finger, guarded by a broad metallic ring, is carried far back in the mouth of the patient so as to depress the root of the tongue and raise and fix the epiglottis, and the tube is introduced by a curved handle attached to its inner surface. The handle is afterward detached by a spring. The tube can be readily removed by attaching the handle to the same fastening on its inner surface. Tubing, as thus employed, usually relieves laryngeal stenosis, and I am not aware that the instrument of Dr. O'Dwyer, although employed in quite a number of instances, has produced ulceration or other injury of the larynx.

Case.—On May 21, 1884, during my term of service in the New York Foundling Asylum, Florence ——, aged three and a half years, was admitted at the time of my visit, suffering from

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extreme dyspnœa. The symptoms of acute laryngeal stenosis, such as great depression at the summit and base of the chest with inspiration, restlessness, and the appearance of anguish in the features, from want of air, were so pronounced, that the child apparently could not live more than two or three hours without relief. The fauces were somewhat hyperæmic, but without pseudo-membrane. The tube was applied by Dr. O'Dwyer, with immediate relief of the dyspnœa and the expectoration of a large quantity of muco-pus. Liquid food was readily swallowed when the tube was present, but occasionally some of it entered the air-passages, provoking a cough. Three hours after the insertion of the tube, the axillary temperature was 102° Fahr. May 22. Breathing still easy; axillary temperature 103°; pulse 130. May 23. The tube has given complete relief. A small pseudo-membrane exists on each side between the uvula and tonsils. May 28. The tube was thrown out to-day, and, as the respiration remained normal, it was not replaced. May 30. Temperature 99¼°; pulse, 136, at times as low as 80; patient has a loose cough. When the tube was worn and immediately afterward, she expressed her wants in a feeble whisper which could be understood even when the vocal cords were covered by the tube. The voice gradually returned after the expulsion of the tube, and no further treatment was required. The suffering of the patient was quickly relieved, and her life was apparently saved by tubage.

The tube when *in situ* does not produce a cough or apparently any unpleasant sensation in the larynx. Tubage would, in my opinion, come into general use as a substitute for tracheotomy, were it not for the fact that the pseudo-membrane, in so large a proportion of cases, extends beyond the larynx, and the tube fails to relieve tracheal and bronchial obstruction. Since tracheotomy gives equally prompt relief to the dyspnœa, in a large number of cases, and enables us to remove the obstruction from the trachea, and, to a certain extent, from the bronchial tubes through the artificial opening, the almost universal opinion in both continents, that it is preferable to tubage or any other surgical measure, has a valid foundation. Usually it is best not to defer tracheotomy in order to make the uncertain

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trial of tubage, when the symptoms are so urgent that surgical measures are required.

Tracheotomy.—Since diphtheria has spread so widely, tracheotomy has become one of the most important operations in surgery. Properly performed, at the proper time, and with judicious after-treatment, it rescues many children from a most painful death. The details of this operation are given in surgical treatises, but some general remarks relating to it may not be inappropriate in this paper.

Sanné says that the operator should have three assistants, at least one of them being a physician. One should administer chloroform, one should use the sponge, and the third, a physician, should be ready to assist in handling instruments, ligating vessels, etc. The operation is either simple and devoid of danger or it is difficult and dangerous, according to circumstances. The younger the child, the greater the danger, other things being equal. The greatest difficulty and risk attend tracheotomy in fleshy infants with thick and short necks, and in patients who have extreme dyspnœa and are nearly moribund, so that the operator is impelled to hurry the operation by fear that death will occur before the trachea is opened. The operator should have time for slow and cautious dissection, so that he may avoid wounding vessels and other important parts.

The patient to be operated upon should be placed on the back, upon a table covered with a blanket, and a bottle or block about four inches in diameter should be placed under the neck, so that the head is thrown back at an angle of forty-five degrees and the anterior surface of the neck is rendered prominent. Chloroform is then administered. An incision should be made through the skin in the median line, one and a half to two inches in length, according to the age, and extending to within half an inch of the sternum. Through the connective tissue to the trachea, the dissection should be slowly and cautiously made with the point of the knife, the scissors, and the blunt hooks which are used to tear the connective tissue and to draw aside vessels. The tip of the finger, occasionally pressed upon the trachea, aids in determining its situation and serves to guide the

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dissection, which should always be in the median line. Little cutting is required after the skin has been divided; but when fibers of connective tissue resist the blunt hooks, they should be cut, either with the point of the knife or with the scissors. A grooved director is also useful in the dissection, since by it the operator is enabled to raise and tear resisting fibers or detach them from parts underneath so that they can be more readily divided.

Some surgeons prefer the high, others, the low operation. In the high operation, the trachea is found nearer the surface, and fewer vessels are in the way than in the low operation. In the operation, however, the trachea is usually opened at that point, whether high or low, which is most readily reached and laid bare. When the trachea is exposed, a longitudinal incision is made through its anterior wall, sufficiently long to admit the canula. It facilitates opening the trachea if it be held by a tenaculum constructed for the purpose, with the hook bent so as to be at a right angle with the handle. The length of the incision through the trachea should be about five eighths of an inch. The canula should not be immediately introduced, but the patient should be made to cough, by inserting a pigeon's quill down the trachea into the bronchial tubes. Blood, mucopus, and shreds of fibrin, if any be present, are expelled through the opening by the cough. The canula is now introduced, with or without the aid of the tracheal dilator. The one which is in common use is that devised by Trousseau, with some subsequent improvements. It consists of two concentric cylinders, the external being fenestrated; and the disk or plate which supports the tubes is movable upon them.

The result depends to a great extent on the subsequent treatment. The common result is immediate relief to the dyspnœa; but unfortunately, in a large proportion of cases, the temperature rises about the third day after the operation, pseudo-membranes begin to form in the bronchial tubes, and, in some instances, broncho-pneumonia occurs. Surgeons have endeavored to prevent the formation of membranes in the bronchial tubes after tracheotomy by allowing lime-water to trickle through the aper-

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ture into the tubes; but now that probably a better solvent has been discovered in trypsine, a mixture of extractum pancreatis and sodium bicarbonate in water or trypsine in a liquid state as prepared by Fairchild should be frequently sprayed into the bronchi by the atomizer, when signs of bronchial participation in the disease begin to appear. No surgical operation more imperatively requires intelligent and attentive after-treatment than tracheotomy; and the canula must be cleaned whenever it becomes obstructed by muco-pus. The febrile movement alluded to above as indicating the extension of the inflammation downward in the tubes, may be in a measure relieved by the application around the chest of one or two thicknesses of muslin wrung out of cool water and covered with oil-silk. No certain time can be foretold for the removal of the canula if the patient survive. If, on withdrawing the inner tube and applying the finger over the end of the remaining canula, the patient breathe easily, the laryngeal stenosis has probably so far abated that the tube can be safely removed.

The following is a description of the instruments in the tracheotomy-case of one of the most skillful operators in New York, Dr. Fred. Lange. All of them have small handles like those of dental instruments:

1. *a.* A scalpel, with the cutting edge convex, the blade 1½ inches in length, its greatest width being ¼ inch. This scalpel is used in dividing the skin and in the subsequent dissection. *b.* A scalpel of the same length, but with a narrower blade and a straight cutting edge, used for opening the trachea.

2. Two blunt hooks, with the hook straight, ¼ inch in length, extending at a right angle from the handle, having a diameter scarcely larger than a carpet-needle. The end of the hook is slightly bulbous. A considerable part of the dissection is made with the blunt hooks, which are used in tearing the connective tissue.

3. Three artery clamps, by which bleeding vessels or oozing surfaces are seized, and the instruments with their points attached to the bleeding surface are dropped upon the sides of the neck. They thus aid in drawing open the wound.

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4. Two tenacula, with hooks in a line with the handle; two others, with hooks at a right angle to the handle; the diameter of the curves in the hooks ½ inch. Those with hooks at right angles are employed for transfixing and holding the trachea when it is to be opened.

5. Two grooved directors, one with the end smaller and more pointed than that of the other.

6. A common artery forceps, and a forceps with fine teeth.

7. A spring-hook, employed by oculists in separating the eyelids. This holds open the edges of the wound.

8. A tracheotomy-tube, consisting of two concentric cylinders, described above.

9. Pigeon's quills. These are important for removing mucopus and fibrinous shreds from the trachea and bronchial tubes. An instance has come to my knowledge in which the physician who assumed charge of a case after tracheotomy attempted to use for this purpose a small piece of sponge held by forceps. He unfortunately loosened his hold, the sponge was drawn in with inspiration, and immediate death by suffocation resulted. This would not have happened with the pigeon's quill.

Dr. Lange does not stitch the wound by the side of the canula, but, leaving it open, dusts iodoform over it, and applies over the iodoform two thicknesses of linen soaked in a bichloride-of-mercury solution, one part to two thousand, and notched so as to surround the canula and pass under the plate. The linen is covered with India-rubber gauze, and is moistened every hour with the bichloride solution.

DISCUSSION.

Dr. J. P. Garrish, of New York County.—Croup is one of the diseases regarding which we always feel an uneasiness when called to see a patient suffering from symptoms suggesting this affection; and I desire, therefore, to say a word concerning treatment. During the past three years, I have treated croup success-

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fully, other remedies having failed, by administering minute doses of the bichloride of mercury. I give, of a solution of one grain of the bichloride in an ounce of water, five drops every hour. I have also found turpentine of benefit placed over the abdomen.

Dr. Thomas F. Rochester.—I suppose that almost every one has tried nearly every remedy proposed for the treatment of diphtheria, and all have been pleased more or less with their degree of success. I remember very well two cases of diphtheria in children in which recovery took place, no other treatment being adopted than lime-water inhalations, given every five minutes for forty-eight hours or more. I believe it was the constant inhalation of lime-water from the steam atomizer that relieved these children. But after a while, lime-water seemed to fail in my hands. Among the many remedies which are constantly being suggested, there is one which has lately been brought to my attention, with the effects of which I have been well satisfied; but whether or not it will prove of wide benefit, I am not yet able to say. A gentleman has stated in one of the recent issues of a medical journal, that he has lost fear of diphtheria since he has employed calomel and iodoform. I have used calomel a good deal, and have often been disappointed in its effects; but the suggestion of the use of iodoform seems to have a good reason back of it. The first case in which I employed iodoform was that of a child, twelve months of age, suffering from measles complicated by diphtheritic croup. The drug was applied with a camel's-hair pencil, and, although the child died, I was impressed by the fact that no unpleasant manifestations followed the use of the iodoform, which was employed in its pure state. Very soon after, I was called to a family in which one child had already died of diphtheria, and another, a strong girl, eight years of age, presented a large diphtheritic exudation upon the fauces, with slight croupy symptoms. I directed a nutritious diet and stimulants, and made a mixture of half an ounce of iodoform with one ounce of bismuth, which was applied thoroughly by insufflation every two hours. The child made a good recovery. No toxic effects were produced.

Dr. A. F. Carroll, of Richmond County.—I do not think that the danger from diphtheria is always to be measured by the extent of the exudation. It has doubtless occurred to all to see cases in which death supervened shortly after the establishment of

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the disease, and in which the exudation was but trifling in quantity. On the other hand, all have probably seen cases in which there was extensive pseudo-membrane and comparatively little constitutional disturbance.

Another point to which I wish to refer is the relation which seems to exist between scarlet fever and diphtheria. It is common for diphtheria to be developed in connection with scarlet fever; but it is very rare for scarlet fever to follow diphtheria. About three years ago, I attended a child who went through a severe attack of diphtheria, and, after eight or nine days, the symptoms subsided. Then, however, the temperature suddenly rose, and, within twenty-four hours, the eruption of scarlet fever appeared and the child died. Of course it had been isolated during the course of the diphtheria.

Dr. E. M. Moore.—All physicians desire, as soon as laryngeal complications develop in the course of diphtheria, to be able to employ some agent by which the pseudo-membrane can be dissolved; and generally an alkaline solution is employed, lime-water having first been recommended, I believe, by a German writer. A great many years ago, I had a case of marked diphtheria, and placed a tube containing the false membrane in a strong solution of bicarbonate of soda. Much to my satisfaction, the membrane was completely dissolved. I was then impressed with the idea that the best plan of treating diphtheria was to use locally a saturated solution of bicarbonate of soda. I first tried to employ it by inhalation with the atmosphere; but, when used in this way, the quantity of the drug which came in contact with the affected part amounted practically to nothing. Later, a friend suggested the employment of a bottle with two tubes passed through the cork, one extending nearly to the bottom of the bottle, and having attached to it a Davidson's syringe, by which it was possible to blow the powder to a considerable distance. At this time there were three children suffering from diphtheria in one family, algid symptoms having developed; and, under my son's supervision, the father of the children employed this method of bringing the bicarbonate of soda in contact with the air-passages for five minutes every hour during the entire twenty-four hours, and the result was that all three of the patients recovered. The children would cry violently during the process, and, as a result of

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the deep inhalations while crying, the powder was brought in contact with the false membrane throughout its full extent. In these cases, the patients had symptoms indicating the presence of pseudo-membrane in the larynx. The important point in this method of treatment is to make a thorough application of the remedy. If this be not done, it can not produce any beneficial results. In some cases I have had sulphur burned in the room. I imagine that few persons have an idea of the quantity of sulphurous acid that patients can thus be made to inhale; and, after a short time, the irritation produced is very slight. I have also made applications of nitrate of silver in such cases.

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FOUR SELECTED TYPICAL CASES OF DIABETES MELLITUS NOT BEFORE REPORTED.

By Austin Flint, Jr., M. D., of New York County.

Read November 20, 1884.

In May, 1884, I reported fifty cases of diabetes mellitus to the "Section on Practice of Medicine and Materia Medica, of the American Medical Association," and to this report, which is contained in the "Journal of the American Medical Association," July 12, 1884, I refer the Fellows of this Association for full details of the treatment employed. Since this publication, I have had under treatment four cases of diabetes, which are typical in many of their characters, illustrating different conditions of the disease and the effects of treatment in patients of different ages.

The first case, which, for my own convenience, I shall designate as No. LIII, illustrates the difficulties met with in treatment when the disease has been allowed to run its course without restraint for a number of months.

Case. LIII.—The patient was an unmarried woman, twenty-two years of age, rather slight in figure when in health, and of medium height. Her parents are living and in perfect health. The family history failed to show any hereditary tendency to this or to any other disease. When in health, the patient weighed 140 pounds. This was the weight about three years before she came under my observation. As far as I can judge from the history of the case, the disease must have existed for two years, or perhaps longer. In January, 1884, the patient had lost about twenty pounds in weight, had excessive urination, an abnormally great appetite

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and thirst, and suffered from a feeling of exhaustion after moderate exercise. At that time she passed, as was stated, from six to eight quarts of urine in the day, which was loaded with sugar. Before the diabetes had become developed, she had enjoyed perfect health with the exception of dysmenorrhœa which had existed since the age of eighteen. She began to menstruate at the age of thirteen, and at the age of eighteen fell from a wagon, striking on her feet, and sustaining no apparent injury at the time. Since this fall, however, she had persistent dysmenorrhœa, suffering intense pain for six or eight hours at every period. She has not menstruated since February, 1884; and in January and February, 1884, she suffered no pain. She was examined in October, 1884, by Dr. James B. Hunter, who found retroversion, but advised no interference unless menstruation should return.

When the patient consulted me on August 25, 1884, she presented all the characteristic general symptoms of diabetes mellitus, including excessive appetite and thirst, weariness after slight exercise, some pruritus vulvæ, and an increased quantity of urine. Her weight was ninety-two pounds. During the winter of 1883–'84, and the summer of 1884, she had indulged excessively in starchy matters and sweets, and since January had taken various remedies without experiencing any benefit.

August 26th.—The urine of the twenty-four hours measured 152 fluidounces, was pale, of a sweetish odor, and had a specific gravity of 1·037. It contained 28 grains of sugar to the fluidounce, giving a discharge of 4,256 grains (8 ounces, 416 grains) in the twenty-four hours. There was no albumen. Microscopical examination revealed the presence of a few octahedra of oxalate of lime with some vaginal epithelium. She was at once put upon a strict anti-diabetic diet, all starch and sugar being rigidly excluded, and was ordered to take three drops of Clemens's solution of arsenite of bromine three times daily.

September 1st.—The quantity of urine was reduced to 112 fluidounces. The sugar was reduced to 12½ grains to the ounce, or 1,400 grains in the twenty-four hours. The excessive appetite and thirst and the pruritus vulvæ had disappeared. The dose of the Clemens's solution was increased to five drops. She felt better and stronger, and the weight (taken September 3d) was increased to 99 pounds.

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10th.—The weight had increased to 103 pounds, and the quantity of urine was reduced to 96 fluidounces, with a specific gravity of 1·023½. The total discharge of sugar for the day was 1,152 grains. The urine, however, presented a trace of albumen. The treatment was continued, with the addition of two grains of quinine three times daily. She had slight uterine pains on September 8th, 9th, and 10th, this being the time in the month when her periods occurred, but there was no menstruation. There was no unusual thirst, and the appetite was normal. She bore the strict anti-diabetic diet very well.

24th.—The weight had slightly decreased, being reduced to 101 pounds. The quantity of urine was 80 fluidounces, with a specific gravity of 1·025, and containing in all 800 grains of sugar. Since September 10th she had been losing strength as well as weight. The treatment was continued, with the addition of one quarter of a pint of cream and a tablespoonful of whisky twice daily.

October 10th.—The weight was reduced to 96 pounds. The quantity of urine was 80 fluidounces, with a specific gravity of 1·023, and containing in all 720 grains of sugar. The patient had followed the treatment, dietetic and medicinal, most faithfully. She had taken, for about four weeks, griddle-cakes made of Hecker's farina, which contains only eight or ten per cent of starch. Notwithstanding the rigid diet, however, I had been unable to reduce the quantity of sugar below 9 or 10 grains to the fluidounce of urine, or 700 to 800 grains in the twenty-four hours, and the strength and general health showed no improvement since September 24th. I decided to try to arrest the discharge of sugar by an absolute fast of twenty-eight hours—a method recommended by Cantani. To this plan the patient cheerfully assented. She accordingly fasted from 8 A. M., October 10th, to 12 M., October 11th, remaining in bed most of the time, and taking nothing but water. The urine passed at the close of the fast contained two grains of sugar to the fluidounce; but it presented oxalate of lime, a small quantity of albumen, and a few small, granular casts. She bore the fast very well, had a good appetite the next day, and for several days felt better than she had for weeks. Following the fast, the former treatment was resumed.

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15th—The quantity of urine was somewhat reduced. Its specific gravity was 1·030, and it contained nine grains of sugar to the fluidounce. There was still a little albumen, with a few granular casts. The patient left for her home in Georgia on the following day. She was in much better general health than when I first saw her on August 25th, but I had found it impossible to arrest the discharge of sugar.

My prognosis in this case is not entirely favorable. It is probable that the excessive indulgence in sweets and in starchy articles of food for several months during the height of the disease has rendered the glycosuria uncontrollable beyond a certain point. Her present safety undoubtedly lies in an anti-diabetic diet, and a return to sweets and starch would probably be promptly followed by a return of the grave general symptoms of the disease.[1]

The following case is in striking contrast to the one just recited:

CASE LV.—The patient was a young girl, of medium height and development, fifteen years of age. Her father and mother are living and in good health, and there is no hereditary tendency to disease. A sister of the patient died at the age of nineteen, probably of diabetes mellitus. The patient began to menstruate at the age of thirteen and has menstruated regularly ever since that time. She was in perfect health up to January, 1884, when she began to lose flesh slightly, and was "ailing" for a few weeks. She soon improved in general health and was apparently well until the middle of August, 1884, when she was found to be passing about two quarts of urine daily, the specific gravity of which was said to be 1·052. Since that time she has been on a moderately restricted diet and has taken various remedies. She suffered somewhat from thirst during August and September. Her urine was found sometimes to contain a little sugar and sometimes it was free from sugar.

[1] I received a letter from the father of this patient, dated November 2, 1884, stating that "she arrived safely without detention, and bore the fatigue of the trip astonishingly well. She is, I think, evidently stronger and better than when she first placed herself under your treatment."

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October 8th.—I made a thorough physical examination of the patient and found no disease. The urine was rather less in quantity than normal, had a specific gravity of 1·031, and contained no sugar. The only abnormal condition of the urine was the presence of a large number of octahedra of oxalate of lime. The diet had been moderately restricted. I ordered that the diet be unrestricted for twenty-four hours.

10th.—After twenty-four hours of unrestricted diet, the quantity of urine was slightly increased. It had a specific gravity of 1·036¼, and contained thirty-one grains of sugar to the fluidounce. There were none of the characteristic general symptoms of diabetes. I ordered a strict anti-diabetic diet, three drops of Clemens's solution of arsenite of bromine three times daily, the dose to be gradually increased to five drops, and a pill of one quarter of a grain of codeine and one twelfth of a grain of podophyllin at night, to relieve constipation should it be troublesome. The patient then left for her home in Virginia.

16th.—I heard from this patient and received a specimen of urine. The treatment had been followed strictly. She had felt perfectly well since her return to Virginia and was passing urine in normal quantity. The urine had a specific gravity of 1·015 and contained no sugar.

In this case the glycosuria seemed to be easily controllable. After examining the urine, I wrote to the friends as follows:

I suggest that the dietetic and other measures of treatment be strictly followed until the middle of December. If, at the end of that time, the urine should continue free from sugar, the patient may begin to eat a little bread and gradually return to the usual diet, except that she should never eat sugar or sweets. The urine should be examined from time to time while she is in process of returning to the normal diet.

My prognosis in this case is favorable. With proper attention to the diet, I should expect a cure; but it will be necessary to examine the urine occasionally for a long time, in order to detect, at the earliest moment, any tendency to a return of the disease.

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CASE LI.—This patient was a robust man, unmarried, thirty-four years of age, five feet seven inches in height, and weighing 177 pounds. He had always eaten largely of bread and sweets. For several weeks he had a moderate increase in thirst and had not been "feeling very well." His urine had been examined, and it was said to contain sugar. His previous health had been good. He had occasionally committed sexual excesses.

I examined this patient on April 8, 1884, and found no disease. The urine was somewhat less in quantity than normal, with a specific gravity of 1·035, and was turbid with urates. It contained no sugar. During the day on which this urine was passed, the patient had abstained from bread and sweets.

April 10th.—I examined a specimen of the urine passed during the day, the diet having been unrestricted. It had a specific gravity of 1·026 and contained a small quantity of sugar.

June 2d.—Since April 10th, the patient had followed a strict anti-diabetic diet and had taken three drops of Clemens's solution of arsenite of bromine three times daily. His urine had a specific gravity of 1·030, was normal in quantity, and contained no sugar. The patient felt perfectly well, but his weight had been reduced to 167 pounds. The dose of Clemens's solution was increased to five drops.

July 16th.—The patient was still perfectly well, the diet was not irksome, and the urine was normal, free from sugar, and had a specific gravity of 1·024. The weight had been reduced to 161 pounds. The treatment was continued.

August 1st.—The patient continued well, but the weight was reduced to 159 pounds. The urine was normal, free from sugar, and had a specific gravity of 1·029. The treatment was continued.

14th.—The patient continued well, and the weight had increased to 161 pounds. The urine contained no sugar and had a specific gravity of 1·026.

20th.—The patient continued in the same condition. The weight was 157 pounds, and he looked and felt in perfect health. The urine contained no sugar and had a specific gravity of 1·031. The patient then passed from under my observation. The Clemens's solution was stopped, and he was instructed to gradually return to a normal diet, but never to eat sugar or sweets, and to carefully abstain from all excesses of any kind.

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In this case, the patient being a young and vigorous man, the glycosuria was readily controllable, and an apparent cure was effected.

The fourth case is that of a man, fifty-nine years of age, in whom the disease, although of at least a year's standing, yielded promptly to treatment.

CASE LII.—The patient, a married man, fifty-nine years of age, was 5 feet 8½ inches in height, and weighed 227 pounds. He was robust, had always enjoyed good health, and had been rather a free liver, but without excesses of any kind. The family history gave no evidence of hereditary tendency to disease. For the nine months previous to the time when he came under my observation, he had suffered from excessive urination, annoying thirst, abnormal weariness, and impairment of appetite. During this period he had lost about twenty pounds in weight.

August 11, 1884.—I examined a specimen of the urine. Its quantity in twenty-four hours had not been measured, but was undoubtedly excessive. It had a specific gravity of 1·023 and contained considerable sugar, with abundant uric-acid crystals. He was at once put upon a rigid anti-diabetic diet, with three drops of Clemens's solution of arsenite of bromine three times daily.

19th.—The general diabetic symptoms had entirely disappeared. The urine was normal, with a specific gravity of 1·020, and free from sugar. The weight was unchanged at 227 pounds.

26th.—The patient felt perfectly well. The urine had a specific gravity of 1·012½ and was free from sugar. The dose of Clemens's solution was increased to five drops.

September 28th.—The patient continued to feel perfectly well. The urine had a specific gravity of 1·030 and was free from sugar. The weight had increased to 235 pounds. The Clemens's solution was stopped, and the patient was allowed to eat a little bread.

October 11th.—The patient felt that he was entirely cured. His weight was 233 pounds. The urine was perfectly normal, had a specific gravity of 1·020, and was free from sugar. He was directed to follow a reasonable diet, not abstaining entirely from starchy matters, but avoiding sugar and sweets. He was requested to have his urine examined again in about six weeks.

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The limited time at my disposal prevents me from giving the diet-table for diabetics and other details of treatment, which would be merely a repetition of what is contained in my paper on the "Treatment of Diabetes Mellitus," published in the "Journal of the American Medical Association," July 12, 1884, and in the sixth edition of my little book on the "Chemical Examination of the Urine in Disease." The diet-table is very varied and is not difficult to follow, the greatest hardship to patients being deprivation of bread. It is a curious fact, however, that, after following a strict diet for two or three weeks, diabetics lose their craving for prohibited articles of food, and the diet becomes by no means irksome. Hecker's gluten-bread and porridge and cakes made of Hecker's farina are sometimes much relished. These articles contain between three and four per cent of starch and do not seem to be injurious. The patients, in all of the cases here reported, were in good circumstances and both willing and able to follow strictly the prescribed diet.

In presenting an account of these four typical cases to the Association, I have purposely put the unfavorable case first. This is the second case that I have met with in which, patients being willing to submit absolutely to treatment, I have not been able to arrest the glycosuria. In this case, for many months the patient indulged inordinately in sweets; and the disease, which was complicated with albuminuria, had become so thoroughly confirmed that, although the general symptoms were controlled, even total abstinence from food would not remove the sugar from the urine. In the three remaining cases, sugar never appeared in the urine after the first week of treatment. The effects of treatment in these cases and in others that I have reported lead me to repeat the quotation from Cantani that I have already made in the paper read by me before the Medical Section of the American Medical Association:

"Diabetes has become to-day a disease easily and certainly curable, provided that the treatment (cure) be not begun too late."

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DISCUSSION.

DR. FLINT said, in reply to a question by Dr. Leale, that his dietary table had been prepared with great care, and that it presented such a variety of food that patients were practically but little restricted, as regards the pleasures of the table, except that they were deprived of bread. He had seen dinners served according to this dietary table which were even luxurious in quality and in variety.

DR. S. S. CLARK, of St. Albans, Vermont.—I have listened to Dr. Flint's remarks with a great deal of interest. I have found, however, from practical experience, certain difficulties in regulating the diet for patients suffering from diabetes, which have not been mentioned by the author. In 1879, I discovered that I had glycosuria. At that time I weighed about 230 pounds. The specific gravity of the urine about 1·040. I placed myself upon an antidiabetic diet, and within a month lost five pounds in weight, and previous to beginning this diet my weight had fallen to 215 pounds. At the end of a month, nearly all my symptoms were intensified, and I suffered greatly from dyspepsia and constipation. The quantity of sugar in the urine, however, had decreased, and the specific gravity was reduced to 1·028. I was obliged to take some starch, and immediately on doing so the symptoms were improved. I also took various remedies. Last spring, the specific gravity of the urine was 1·022, or nearly normal; but I again tried the strict diet and found that the specific gravity, instead of decreasing, increased to 1·026, and each ounce of urine contained twenty-six grains of sugar—a larger quantity than at any previous time. I then lived on an exclusively animal diet; and, when the specific gravity of the urine had fallen to 1·012, it contained, even then, twelve grains of sugar to the ounce. I then, by continuing this diet, reduced the specific gravity of the urine to 1·003, but it still contained sugar. I then supposed that I must have Bright's disease; but examination of the urine failed to reveal albumen. It contained, however, a few hyaline, mucous, and epithelial casts. There was slight swelling of the feet and face, and some headache. I again lost five pounds of flesh within two or three weeks after adopting the rigid diet. There was great loss of strength, and I

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was obliged to fall back upon starchy food for relief. I mention these facts because I have not seen it stated in books that sugar exists in urine of a specific gravity less that 1·008.

Dr. Flint said the lowest specific gravity of urine containing any sugar, which he had observed, was 1·011. He further desired to impress the fact that, if attention were paid to the preparation of the food mentioned in his diet-table, the demands of the most capricious appetite would probably be met. He thought that if medicinal remedies were constantly employed, both patients and physicians were liable to attach too much importance to the drugs, and thus be induced to neglect the diet, which is always the most important measure of treatment.

Dr. W. C. B. Fifield.—I have not heard the entire paper, and I should be glad to know what success has been obtained from the dietetic treatment in patients of different ages. It is generally stated that persons advanced in life almost always recover from diabetes, while in the young adult the disease certainly proves fatal. I can not help recalling how useless all treatment, including the strictest observance of dietetic directions, had proven in the case of my only son, fourteen years of age, who presented symptoms of diabetes shortly after he had been injured by a savage bull-dog. There were times when, under strict diet, the specific gravity of the urine would be diminished and the quantity of sugar would be lessened; but the glycosuria never entirely disappeared, and the case went on to a fatal termination.

Dr. Flint briefly reviewed the histories of some of his cases, and said that he thought that what we called a cure might be effected, even in patients who had not passed the fifteenth year.

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A CASE OF PISTOL-SHOT WOUND THROUGH THE STOMACH, FOLLOWED BY RECOVERY.

By John H. Hinton, M.D., of New York County.

Read by Title, November 20, 1884.

The case of pistol-shot wound of the stomach, which I am about to describe, came under my care at the Presbyterian Hospital, on February 12, 1884; and, from the fact that there are but few reported cases of recovery from wounds of the stomach, and possibly no other on record in which the stomach was actually shot through, I venture to give the case somewhat at length, together with a brief consideration of the literature of the subject. That the case was considered to be very grave, may be inferred from the fact that two of my associates suggested laparotomy, and that all gave an unfavorable prognosis.

The subject of the injury was a young man about twenty-one years old, blonde, five feet eight inches in height, and weighing about 155 pounds. He was shot in the back, at an elevated railroad station, a few minutes after his breakfast, at about 8.30 A. M. He immediately fell upon the floor, and was thence carried to a station-house one square distant. From there he was taken carefully to the hospital in an ambulance. On admission, his condition was fairly good, without much shock. An inspection of his coat showed it to be blackened or burned by the powder, on account of the proximity of the muzzle of the pistol to his back. An examination of the body showed a wound over the tenth rib, about five inches to the left of the spine. The ball could be felt under the

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skin in front, at a point about two inches from the median line and about three inches from the umbilicus.

The wound in the back was closed with adhesive plaster. Urine was drawn off with the catheter, but it showed no signs of blood. About thirty minutes after his admission, he began to vomit dark clotted and liquid blood mixed with food. Cracked ice by the mouth was given, and a hypodermic injection of Magendie's solution, ♏ v, and ergotin, gr. v, in water. He showed no signs of collapse and expressed himself as feeling well.

Within about three hours after the shooting, I removed the ball from under the skin; and I ascertained, by exploration with the point of the little finger, that the ball, a conical ·32 caliber, had passed through the cartilage beneath. This fact, taken in connection with the vomiting of food and blood, showed that the ball had passed entirely through the stomach. Flaxseed poultices were applied over the anterior and posterior wounds, and he was ordered to have no food by the mouth, enemata of milk being given every four hours. During the day, he vomited blood four or five times, but showed no symptoms of collapse. In the evening, he had a hypodermic injection of Magendie's solution, ♏ x. He was restless during the night, but had no pain. The temperature was 101° Fahr., and the pulse 120, full and strong.

February 13th, 6 A. M.—No pain, but restless. Magendie's solution, ♏ x, hypodermically. 9 A. M., pulse 120, respiration 23, temperature 101°. Had an enema of warm milk. At 1 P. M., the condition was unchanged. At 2.30 P. M., he vomited about ℥ iv of dark, fluid blood. Pulse 120 and strong. Ordered tinct. aconit. rad., ♏ ij, every two hours.

14th.—Slept most of the night after a hypodermic of Magendie's solution, ♏ xv. At 3 A. M., vomited about a half-pint of blood. About noon, had a large movement from the bowels, consisting of fæcal matter with blood, looking like tar. Aconite continued. Evening, temperature 101°, pulse 107, respiration 20. Has had enemata of milk during the day.

15th, 9 A. M.—Slept about five hours last night after a hypodermic of Magendie's solution, ♏ xv. Pulse 108, respiration 17, temperature 100°. Has slight pain in the anterior wound and tenderness in the iliac fossa, probably from flatus. To-day, beef-

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juice and eggs were added to his milk-enemata. Had a loose fæcal movement without blood. Tongue dry and covered with a brownish fur, but general condition very good. When the patient was first admitted, he was placed in a room on the north side of the hospital; to-day he was removed to a room with a southern exposure. 7 P. M., feels sore generally; thinks it due to the moving. Pulse 108 and slightly dicrotic. 10 P. M., pulse 110, respiration 17, temperature 102°. Complains of general abdominal soreness. Hypodermic of Magendie's solution, ♏ xv.

16th, 2 A. M.—Awake and restless, but has no pain. Magendie's solution, ♏ xv, administered hypodermically. 9 A. M., pulse 108, respiration 17, temperature 101·5°. No pain or abdominal tenderness. Both wounds discharging pus. Was allowed to-day, milk, ℥ j, and Apollinaris water, ℥ j, every hour. Loose movement from the bowels, without blood. 7 P. M., pulse 100, dichrotic; respiration 20, temperature 101·8°. 10 P. M., Magendie's solution, ♏ xv, hypodermically.

17th, 3 A. M.—Restless; can not sleep. Was given a hypodermic injection of Magendie's solution, ♏ xv. 9 A. M., has had some sleep. Pulse 107, respiration 17, temperature 101·2°. Feels rather weak and complains of hunger. Was ordered strained *bouillon* in addition to milk, ℥ j every hour. General condition good. From this date on, the daily record gives a temperature of not higher than 103° to February 25th, when it is marked at 99°, with respiration 16, and pulse 86. He has had hypodermics of Magendie's solution in doses varying from xv to xx ♏, to induce sleep. Absorbent dressing was applied on the 20th inst. His bowels have moved spontaneously almost daily. The food taken by the mouth has been well borne. The nutrient enemata were discontinued on the 18th inst.

March 2d.—Sat up to-day for the first time. Has been doing well. Has had a hypodermic of Magendie's solution, ♏ x, each night, to induce sleep.

5th.—Doing well. Wounds not quite healed. Has slept for the last two nights without morphine.

15th.—Since the last note, the patient has steadily gained strength. He has been up and about the hospital every day. The temperature, respiration, and pulse are normal. The wounds are not yet covered with epidermis. To-day he was permitted to go

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out to walk. The weight shows a loss of about twenty pounds. The present weight is 133½ pounds.

25th.—The patient continues to do well. The appetite and digestion are very good. He has gained ten pounds in weight within the last ten days. He makes no complaint and drives and walks daily. The wounds have completely healed, with the integument slightly attached to the tissues beneath but not enough to impede the movements of the body or to produce any discomfort. He left the hospital to-day, apparently well, and has remained well up to the present time.

The points which I wish to emphasize in the report of this case are that there was no meddlesome surgery or anticipatory drugging and that the patient was not overwhelmed with opium to prevent peritonitis. The stomach had entire rest for about four days, the system being sustained by means of nutrient enemata. Morphine was used only to induce sleep at night; and, beyond this, he had but a few doses of aconite tincture, and toward the end, two or three saline draughts. His food was carefully chosen, and he was allowed to take with it a little light wine. He was placed in a room with a southern exposure—a matter of great importance in the management of a grave case during the winter season.

There is not the slightest reason to believe that the ball did not pass through both walls of the stomach; but, the wounds being small and closing quickly, no food or blood passed into the peritoneal cavity. That we might in some wise imitate such an injury, I directed my house-surgeon to fill the stomach of a cadaver with water to about the quantity of an ordinary breakfast, and then to shoot it from behind. The ball entered the body at about the same place as in the case related above, and, by the dissection that followed, it was shown that it passed through both walls of the stomach and lodged in the anterior abdominal muscles. The posterior wound of the stomach was guarded by a valvular flap of mucous membrane, which prevented the escape of liquids. The anterior wound had no flap, as might have been supposed; yet the wound was almost

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closed, which, in all probability, would be the case in living tissue.

Professor F. H. Hamilton, writing of such cases, says: "The recorded examples of recovery after this accident are very few.[1] The case of Alexis St. Martin, on whose person Dr. Beaumont, of the United States Army, made his famous experiments upon the gastric juice, is well known to the medical profession.[2]

"Dr. De Witt C. Peters, U. S. Army, has reported the case of a soldier, wounded September 13, 1862, by a pistol-ball. For two months the stomach discharged its contents through the wound, but the opening finally closed without surgical interference, and the recovery of the patient was complete."[3] This case is also reported in the "Medical and Surgical History of the War of the Rebellion." I shall refer to it again hereafter.

Professor Hamilton also writes: "The fatality of these accidents is even much greater than that of similar wounds of the intestines. Probably not one in fifty recovers, perhaps not one in a hundred" ("Military Surgery," p. 358).

In the "Medical and Surgical History of the War of the Rebellion," Washington, 1876, surgical vol., second part, chap. vi, p. 44, is the following:

"Gunshot Wounds.—Not less than nineteen cases of recovery from alleged shot-wounds of the stomach were reported. The evidence in each instance has been examined, and the inferences are that in some cases the diagnosis had no foundation, and the erroneous returns were due to culpable carelessness or ignorance, the term stomach being sometimes employed by simpletons apparently as a euphuism for belly; that, in other cases, hospital-surgeons or pension-examiners have related and indorsed the narratives of patients, and described as facts events which, if they ever occurred, transpired long before the patients came under their observation, and are destitute of corroborative evi-

[1] "Treatise on Military Surgery," New York, 1865, p. 359.

[2] "Experiments and Observations on the Gastric Juice and the Physiology of Digestion," Plattsburgh, 1833.

[3] "American Medical Times," New York, April 4, 1863; quoted by Hamilton, "Treatise on Medical Surgery," New York, 1865, p. 360.

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dence; that, in a few instances, recovery followed injuries which careful and competent observers pronounced to be shot-wounds of the stomach; finally, that, even in the latter small category, not more than one incontestable example of recovery was recorded. Careful investigation of the recorded symptoms and progress of the six following cases has failed to elicit any evidence in corroboration of the diagnosis of 'severe gunshot wounds of the stomach,' with which they were reported. None of the names appear on the Pension List."

Of Dr. Peters's case, referred to before, it says:

"The following case, reported by Assistant Surgeon D. C. Peters, U. S. A., has been adduced as an irrefragable instance of recovery from a shot-perforation of the stomach. It will be observed that there is no other evidence of the gastric extravasation and of the hæmatemesis than the patient's statement. It is noticeable that Assistant Surgeons Du Bois and MacKenzie, who successively had the patient in charge, made no note of these remarkable features."

Then follows Case 185, which is Dr. Peters's case.

Case 187 is that of Private Patrick Sweeney, 7th N. Y. Cavalry, aged twenty-one years, who was shot in a quarrel in Washington about midnight, January 4, 1862. This case (187) is, however, preceded by the following note: "The next observation (case observed) is important because the symptoms immediately following the injury were observed and recorded. Unfortunately, the reporter suffered an interval of four years to elapse before placing the case on record. It may be ungracious to deny the exactness of his diagnosis, which, indeed, furnishes the most plausible explanation of the phenomena, yet none of the symptoms related are inconsistent with the hypothesis that the visceral lesions might have been limited to the left lobe of the liver or to the duodenum."

It is either this case or Dr. Peters's case which is the "one incontestable example of recovery" referred to by Dr. Otis, the compiler; for the seventeen other cases are discarded as questionable or entirely valueless as cases in point.

From these remarks upon the so-called nineteen recoveries

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from gunshot wounds of the stomach, it is seen that the recorded cases of recovery are exceedingly rare, and that possibly there is but one. The subject of this paper, at the time of writing, November 1, 1884, is reported as being in perfect health, which is a matter of considerable surgical importance, in view of the almost hopeless prognosis, given in these cases, by Professor Kocher, of Berne, who is reported in the "American Journal of the Medical Sciences" for October, 1884, p. 574, as saying that, "considering the impossibility of recovery in cases of gunshot wound of the stomach when active measures are not taken, it is the duty of the surgeon to perform laparotomy whenever an injury of that kind is suspected."

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REPORT OF A CASE OF LIGATURE OF THE RIGHT PRIMITIVE ILIAC ARTERY FOR DIFFUSE ANEURISM OF THE EXTERNAL ILIAC; DEATH FROM PYÆMIA ON THE TWENTY-FIRST DAY.

By John W. S. Gouley, M. D., of New York County.

Read November 20, 1884.

M. McM., twenty-two years of age, a laborer, was admitted to Bellevue Hospital on the 8th of October, 1871, suffering from a painful, hard, and elastic pulsating tumor in the right inguinal and iliac regions, extending six inches above and two inches and a half below Poupart's ligament, and two inches and a half to the left of the median line, clearly marked in outline and evidently intra-abdominal.

The history of his case, given by the patient, was as follows: About two years before his admission to the hospital, a barrel of lime had rolled against him, inflicting a contusion in the neighborhood of the right inguinal region. Soon after this injury, he contracted urethritis with a chancre, followed by an enlarged inguinal gland which soon subsided without suppuration. No constitutional symptoms ensued so far as he knew, and none were apparent when he applied for treatment on the 8th of October, 1871. Nine months before his entrance into the hospital, he noticed a tumor in the right inguinal region, above Poupart's ligament. Three months after it was first noticed, the tumor had attained the size of a hen's egg, and he then observed for the first time that it pulsated. After another period of three months, it had very

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greatly increased in size, and, two months before his admission to the hospital, it had nearly attained the dimensions noted on the 8th of October, 1871. The man continued his work of handling and sometimes even lifting barrels of lime, until the tumor had become very painful; and not until then did he apply for treatment at the hospital. The pain was seated partly in the region of the tumor—and there it was of a burning character—but chiefly in the course of the anterior crural nerve, as far down as the knee, and it was here due to compression of the nerve by the tumor.

In the physical examination of the case, various tests were employed, among them that of placing at the summit of the tumor a square bit of white paper with one of its corners turned up. By this simple and well-known expedient, an excellent device for demonstration in a large amphitheatre, the pulsations were rendered very distinct and could be seen at a considerable distance. By palpation and compression, the heaving of the whole tumor and its pulsation were made still more certain, while auscultation revealed the existence of a well-marked bellows murmur. The integument overlying the tumor was dark-colored and œdematous. The discoloration was believed to be due to rupture of the aneurismal sac, the foregoing facts having led me to the diagnosis of traumatic aneurism, and now of diffuse traumatic aneurism of the external iliac artery. There was slight pulsation of the anterior tibial, but none of the posterior tibial or femoral arteries. The patient was somewhat emaciated but had no apparent lesion of the thoracic or abdominal viscera. On the 12th of October, it was noticed, even by the patient, that the tumor had markedly increased in size since the 8th of October, and he said that his pain was much worse, although he had taken a free dose of morphine. In addition, the local heat was greater than it had been for the three days past, and the rapid unfavorable progress of the patient compelled immediate surgical interference. At a consultation with my colleagues, I proposed, as the only chance for the patient's life, ligature of the primitive iliac artery, and, if necessary, of the common femoral, to be immediately followed by free incision of the aneurismal sac, in order that the blood-clots might be removed and the whole cavity of the aneurism cleansed. The gentlemen all agreed with me as to the necessity of ligature of the primitive iliac but would not consent to any form of disturb-

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ance of the aneurismal sac. I yielded to their objection, without, however, changing my opinion with reference to the propriety of incision of the sac, so warmly advocated by one of the best and wisest authorities of the early part of this century, and so successfully executed by Professor Syme in our own time.

Operation.—On the same day, October 12, 1871, ether was administered to the patient in the usual way. The size and configuration of the tumor rendered the operation more than ordinarily difficult, and, for the sake of safety, it was thought necessary to adapt the course of the incision to the requirements of both. Before, however, I proceeded to cut, a trusty assistant was notified to be in readiness to compress the abdominal aorta manually in case the sac should suddenly burst when exposed. This provision having been made, I began my incision at the lower border of the tenth rib, in a line drawn from the center of the axilla to a point on the level of the anterior-superior spinous process of the ilium, and one inch nearer the median line of the body than this bony process. This was the general course of the slightly curvilinear incision, which was nine inches in length, except the lower two inches, which formed an arc of a much smaller circle and took an upward and inward direction in the discolored portion of the integument. The object of this deviation in the line of incision was to permit retraction of the skin and underlying tissues, and thus afford sufficient space to expose and reach the main artery. A few superficial bleeding vessels were secured, and the incision was then extended through the oblique and transversalis muscles and through the fascia transversalis, bringing into view the subperitoneal connective tissue. After separating with the fingers the peritonæum from the transversalis fascia, retraction of the wound and protection of the tumor and the peritoneal contents were effected, partly by one hand of an assistant, and partly by means of a steel spatula about three inches broad—the same spatula that had been used for a similar purpose by the late Dr. Valentine Mott, and was skillfully employed on this occasion by his son, Dr. A. B. Mott. By this large wound and very efficient retraction, the artery was brought into view for one inch of its length. Nevertheless, it was somewhat difficult to pass beneath the vessel, from within outward, the Mott artery-needle, which was armed with a stout silk ligature; but this step of the operation was successfully

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accomplished. Before knotting the silk, I made a careful examination, to be sure that neither the ureter nor the iliac vein was included in the ligature, which was then securely tied. From that moment, the pulsation of the tumor ceased. The wound was then cleansed, its edges were stitched, and the dressing was completed by the application of strips of adhesive plaster, layers of cotton, and a retentive bandage. The whole limb was swathed in cotton, and bottles of hot water were placed on either side. The operation was concluded within thirty-two minutes. A hypodermic injection of ten minims of morphine-solution was administered before the patient had recovered from the anæsthesia, and, when he did recover, stimulants were given him in small and frequently-repeated doses.

On the 13th of October, in the morning, the pulse was 128 and full. A dose of aconite was given. In the afternoon, the tumor had already softened and the crural neuralgia had disappeared. The temperature of the affected limb was higher than that of the limb on the sound side.

On the 14th, the pulse was 130 and full. There was little if any pain. The patient slept well but had no inclination to eat. The tumor was softer and was decreasing in size. The discoloration of the skin at the seat of the operation had lessened. From the first day, evacuating catheterism of the urinary bladder had been necessary, but on the third day he urinated spontaneously. He had, during the night of October 14th, a sudden attack of diarrhœa, which was, however, quickly checked by a dose of morphine.

Early on the morning of the 15th, his pulse was 130 and he was sweating profusely. Eight hours later, he was much better; pulse 108; body-temperature 102° Fahr. In the course of another hour, the pulse rose to 120, and the bowels became tympanitic, although he was generally better and in good spirits, eating well and with relish. There was some discharge of pus from the lower end of the wound, but none from the upper half, which appeared to be healing. The parts were washed and covered with sheet-lint soaked in carbolized glycerin and water.

On the 16th of October, the pulse was 112 and the temperature 102·75°. He had slept well all night, had no pain, and urinated normally. The adhesive strips were for the first time changed

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and some of the sutures were removed, the upper half of the wound having healed. The lower half of the wound was unhealed, and there issued from it some sanious pus. The superficial dressing previously used was renewed. In the evening it again became necessary to use the catheter. The pulse was 112 and the temperature 101·25°. On the day following, the pulse was 100 and the temperature 101°. The aneurismal tumor began to show signs of rupture. Its wall, at the lower portion and external border, had become extremely thin and black, and the overlying integument, for a space of two inches by four, was black and gangrenous. During the evening there was some febrile reaction. On the 18th of October, the pulse was 102 and the temperature 101°. The lower three inches of the wound gaped widely, but the aneurismal sac had not yet burst. The catheter was used until the 21st of October, when the patient again urinated spontaneously. On the 22d, dark, tarry blood first began to ooze from the sac through a small opening, and the sac was floating, as it were, in a pool of pus. The gangrenous integument, being loose, was removed by slight traction. The patient began to complain of his chest, or rather of his lungs; but nothing is stated in the notes of the case as to the precise nature of the pulmonary complaint. This respiratory uneasiness may have been due to the existence of purulent foci in the lungs, since other signs of pyæmia had already manifested themselves. Although the patient slept well and spoke of feeling well, he appeared to be daily losing ground, and his pulse and temperature obstinately remained abnormal.

On the 24th of October, the pulse was 100 and the temperature 99·5°. The area of ulceration over the tumor measured five by six inches, extending two inches below the lower extremity of the incision, and the sac began to protrude. On the 26th, the pulse was 120 and the temperature 102°. The patient had been sleeping well but had no appetite. I cut short the slow, spontaneous enucleating process of the aneurismal sac, by introducing a finger and sweeping it around that part of the sac which was out of sight, and at the same time I removed portions of sloughy muscular tissue. No hæmorrhage followed this procedure. After the sac had come away, I could, with the finger still in the cavity, distinctly feel the bladder. The tumor consisted of two sacs;

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the real aneurism, which was of the size of a hen's egg, and an outer and larger sac, separated from the inner by a layer of firmly-coagulated blood, two inches in thickness. The cavity thus exposed was then thoroughly cleansed and was filled with picked lint saturated with carbolized oil. The removal of this mass seemed to give him great ease. In the evening, however, there was febrile reaction.

The diet of late had been one quart of milk and three eggs daily, with eight ounces of whisky. The internal medication consisted of quinine and aconite.

On the 27th of October, the patient had a chill which lasted fifteen minutes. He was placed upon a water-bed on account of the appearance of a bed-sore. The pulse was 140 and weak, and the temperature was 103°. The daily quantity of quinine was then increased to thirty grains. At two o'clock in the afternoon, the pulse was 120 and the temperature 102°, and at six o'clock he had a second, and a more severe chill. On the 28th, he had two chills, and his pulse was 128.

On the 29th of October, the pulse was 124. At 10 A. M., he had a chill and began to sink. In the evening, he complained for two hours of intense pain in the heel and foot of the affected side, although ordinary sensation was abolished and the surface was cold. Warm applications to the feet were ordered, and a dose of morphine was given. On the 30th, the pulse was 124. The pain in the foot was more severe but was afterward relieved by opium. A chill occurred at 9 A. M. The face was cadaverous, and he was fast sinking.

On the 31st of October, the right ankle was ecchymosed but not swollen. The pain in the ankle had extended to the leg and was intense. On that day he had several slight chills.

On the 1st of November, the ecchymosis had greatly increased. The patient died on November 2d, at 2 P. M., at the end of the twenty-first day after the operation.

Autopsy.—The ligature lay loose in the wound and was removed. The primitive iliac artery was completely obliterated. Nearly the whole of the external iliac had sloughed away with the sac, leaving less than an inch of its lower extremity, which was entirely closed. There was a pelvic abscess which involved the psoas muscle. The femoral and iliac veins were pervious and free

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from thrombi. The wound had healed to the surface, except in the track of the ligature.

The relatives of the deceased having objected to a complete autopsy, the examination was consequently confined to the pelvic region.

REMARKS.—The fatal result in this case served to strengthen the opinion I had expressed as to the management of the sac after ligature of the artery. It reminded me of the more fortunate case of a soldier who, in 1861, received a sword-thrust in the upper part of the left arm and was brought to me a few hours after with a tumor, at the seat of injury, of the size of a hen's egg. I immediately expressed the belief that the brachial artery was wounded, and that the tumor, consisting of clotted blood, was the beginning of an aneurism which, if left undisturbed, would eventually become diffuse. The injury being a little below the insertion of the pectoralis major muscle, pressure was applied to the subclavian artery, and I made a longitudinal incision directly through the tumor, turned out the clots, exposed the wounded artery, which I tied above and below the wound, then cut away the vessel between the two ligatures, and thus excised an embryo aneurism. It is fair to say that a wound of an artery is an aneurism in embryo. The patient made a complete and rapid recovery. I believe that excision of a portion of a wounded artery is not a modern practice, but a revival, with but slight modifications, of what was long ago recommended and executed.

The particular point in the report of the case of diffuse aneurism, to which I have the honor of asking your special attention, relates to the management of the sac. It seems to me that, in the case in question, if I had carried out my intention of freely opening the sac, the chances of recovery would have been greatly increased; and that this procedure, for which we have such strong warrant, and which is in itself so simple, so philosophical, and therefore so eminently surgical, should be more insisted upon than it has been of late years. The patient was in an excellent condition at the beginning to bear the proposed

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operation of incision of the sac. He succumbed from pyæmia, solely because a great bag of dead and decomposing blood was retained in his flank. The necrotic process was so slow that it became necessary to resort to artificial enucleation of the sac, but the decomposing mass had already caused damage that could not be repaired. If, after ligature of the main artery, the sac had been freely opened, the clots extracted, and the cavity filled with lint, I am sure that the risk would have been infinitely small as compared with the expectant plan which was so unfortunately adopted.

If I be wrong in this view of the case, I trust that those who think so will candidly state their reasons. I therefore urge that the following question be fully discussed: Whether free incision of the sac of a diffuse traumatic aneurism, after ligature of the artery or arteries by which it is supplied, is, as a general rule, a proper or an improper practice.

DISCUSSION.

Dr. Fifield, of Boston.—During the first part of the present century, a great fountain of surgical knowledge was opened in England, and it has continued to flow ever since, almost all modern authors in surgery having derived their inspiration from this source. John Bell was that fountain of knowledge. Time has not taken much from what he has said, and it has not added much to what he pronounced. If we should turn to the famous book in four volumes, "Principles of Surgery," written by John Bell, we might read, even at the present time, his essay upon diffuse aneurisms, with great profit to ourselves. It is very curious to observe how he anticipated the views held by Lister and the modern apostles of antiseptic surgery. In speaking of diffuse traumatic aneurisms, John Bell told this story: When such an aneurism holds at first, perhaps, not more than an ounce, it speedily increases until it contains ten or twelve ounces. The overlying tissues change,

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and the skin assumes a different hue and approaches sloughing. The sac itself becomes filled with blood, which forms a clot, perhaps plugging the artery above and below, and also plugging the vessels leading into it. By this crowding and compression, sloughing occurs in the aneurismal sac, and, at the bottom of the sac, in this condition, is a putrescent fluid, which, as soon as the sac opens, will set up pyæmia, or blood-poisoning. John Bell said further that, instead of allowing sloughing to take place in the aneurismal sac, with the subsequent development of pyæmia, it had been proposed to make a crucial incision into the sac. More than that, the same author has stated that, in a diffuse traumatic aneurism, it is useless to make pressure above the sac, and it is useless to throw a ligature around the artery; and that the only way in which it should be treated is to put the knife to the skin, thrust it boldly into the aneurismal sac, and then scoop out the contents with the hand. When a jet of blood appears above the orifice, the vessel is to be compressed by the thumb, and a ligature cast about the upper as well as the lower portion of the artery. The aneurism itself should then be entirely removed. He also said, most significantly, treat it with antiseptics. He used the very word antiseptic. The ancients applied the actual cautery to the sac, and in this way the development of pyæmia may be prevented.

Dr. E. M. Moore, of Monroe County.—We can often accomplish much good by placing on record our mistakes; and I may say that my experience in a case of traumatic aneurism of the brachial artery was almost precisely the same as that of Dr. Gouley. The case terminated fatally. The operation was postponed for several days, in the hope that some benefit might be obtained from pressure; but the injury was situated where pressure could be applied only with great difficulty, and it proved of no avail. The wound was so high up in the axilla that a ligature could not be put upon the artery above it. I determined, therefore, to cut the sac open and to tie both ends of the vessel. I proposed to have an assistant compress the subclavian artery as it passed over the rib, and intended to make a bold cut into the aneurism, which was about four inches in length, seize the clot, and then thrust my finger into the opening of the vessel above. But the gentleman who was securing the subclavian artery by

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pressure with the thumb failed to occlude it; and, as soon as I removed the aneurismal clot, arterial blood gushed forth in such quantities that I became disconcerted. I called out to the assistant to hold the artery; but this was a mistake, as it simply caused the gentleman to push his thumb downward, off the artery, and the flow of blood was then such as I had never seen before. We thrust a napkin and a handkerchief into the wound and succeeded in checking the hæmorrhage, but the man had become faint. It was now late in the day, it was growing dark, and I was far from home. What should be done? At last it was determined to undertake the difficult operation of tying the left subclavian artery, which, fortunately, was done with entire success. But, on the fourteenth day, the usual result came; first, a little leakage of blood along the side of the ligature, and then a little more, and still a little more; but I hesitated, and did not do what should have been done; namely, apply a ligature around the subclavian artery higher up.

Dr. Fifield remarked that he did not believe that the assistant could have held the artery, even if he had had it in a vise; and on this point he again quoted from John Bell.

Dr. C. B. Nancrede, of Philadelphia, referred to a case of popliteal aneurism, in which hæmorrhage could be controlled by pressure upon the deep femoral, but not by pressure over the pubis; and he finally was forced to tie the vessel below. He thought pressure made at the point where Dr. Moore had proposed in his case should have controlled all the collateral branches, except, perhaps, one; and he did not think that there could have been much, if any, hæmorrhage had the plan been carried out.

Dr. Moore remarked that he did not expect to control all hæmorrhage; but he hoped to have time to introduce the finger into the opening of the vessel.

Dr. Gouley, in closing the discussion, said that he had listened with great interest to the quotations made by Dr. Fifield from the old master, John Bell, in which he had given us one more example of his excellent memory and great erudition. He trusted that, at a future meeting of the Association, Dr. Fifield could be prevailed upon not only to be present, but also to read a paper. Dr. Gouley then said that he had reported his case for the purpose of recalling attention to the old practice of incising, and

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sometimes of excising, diffuse aneurisms, especially those of traumatic origin. He thought that there was not so much hope in cases of arteries diseased from old age, although he must say that his results, after tying atheromatous arteries in old people, had been very good. He had never had to contend with secondary hæmorrhage in such cases, but the prospects were much more favorable in cases of traumatism of healthy arteries. In his case of diffuse aneurism, it was not his intention to remove the sac, but to make a linear incision, turn out the clots, and then to treat the case antiseptically. By antiseptics, he did not mean all the paraphernalia of Listerism, but simple cleanliness.

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CHLORATE OF POTASSA; ITS ABUSES.

By H. O. Jewett, M. D., of Cortland County.

Read by Title, November 20, 1884.

Remedial agents belonging to the class of active poisons are usually prescribed and administered sparingly, and with a degree of care and precision which precludes the probability of frequent accident or injury from their use. Not so, however, with some of those milder remedies, possessing toxical properties in a less concentrated form; and these, being popularly regarded as safe and harmless, are far more liable to misuse which may be productive of serious, if not fatal, mischief. Hence it is that a thorough acquaintance with the nature and properties of the latter may become of great practical importance. Of this class of remedies is the chlorate of potassa, an article the use of which has become so general that, in some localities, it may be found, as a sort of domestic remedy, in almost every house. It is procured in quantity and prepared in the form of a saturated solution or a powder, to be used indiscriminately, without the advice of a physician, in the treatment of nearly all acute affections of the mouth and throat, from a simple cold to the most malignant form of diphtheria. Even when prescribed by a physician, the directions for its use have sometimes been so careless and indefinite that they might better have been omitted altogether. I have known patients directed to obtain five or ten cents' worth, to dissolve it in a goblet of water, and take it freely and frequently. It is easy to see how, if the druggist be quite liberal, and if the water in which it is dissolved be of the tem-

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perature of an ordinary sick-room, a solution of considerable strength may be obtained which, if taken according to the above directions, may produce very serious effects.

The compressed tablets, each containing about five grains of the salt, are much in vogue; and this I consider one of the most objectionable forms in which it can be used, as in this form the patient may take much more than he intends to use. I have known a patient consume ten or twelve of these tablets in the course of a single day or night. This excessive use of the drug can scarcely fail to produce mischievous effects. It is true that this salt is so sparingly soluble in water at a moderate temperature, and the dose required is so large that, unless it be taken undissolved, fatal effects can rarely be expected.

With the few fatal cases that have been reported in the journals, you are doubtless all familiar, as also with those instances in which it has seemed to aggravate, if it did not actually induce, an incurable form of albuminuria. This is a result which might naturally be expected. The chlorate, being readily and rapidly eliminated through the kidneys, acts as a direct and vicious irritant upon the delicate and complex structure of these organs, especially when they are rendered morbidly susceptible to such influences by the presence of such diseases as diphtheria and scarlatina. The value of chlorate of potassa as an adjunct to other means in the treatment of a variety of diseases, no one will question. In solutions of proper strength, it has been found to be an excellent lotion for burns, for scrofulous and phagedenic ulcers, etc. It is also useful in the treatment of the follicular stomatitis of infants and nursing women, of diphtheria, scarlatina maligna, and many other affections involving lesion of the mucous surfaces and a general septic condition of the system.

The theory advanced by Dr. O'Shaughnessy of its oxidizing effect upon the blood is, I believe, generally discarded. Equally fallacious is the theory that its free administration may avert the tendency to membranous exudation in diphtheria and croup. As an internal remedy, its therapeutical value is far from being well established. Its *modus operandi* is not so well understood

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and the indications for its use are not so clearly defined as in the case of most of the other salts of potassa.

It is, however, no part of the purpose of this paper to discuss the therapeutical value of chlorate of potassa, my object being simply to record and emphasize some facts illustrative of the evils resulting from its injudicious and excessive use. To this, as to all other medicinal agents, applies the rule, "*ubi virtus ibi virus.*" It has been believed that an inordinately large dose of this salt was required to produce anything like alarming effects; but recent experience has taught us that, under some circumstances, even moderate doses may accomplish this. Much may, of course, depend upon individual tolerance or the modifying effect of other morbific causes. The toxical effects of this drug are sometimes manifested by symptoms resembling those of acute catarrh, with, perhaps, the absence of coryza as a prominent feature. If the case be severe, there may be diffused inflammation of the mucous membrane of the whole buccal cavity, the posterior nares, the fauces, and the pharynx and larynx as far as can be seen. The parts about the glottis are moderately swollen. There is hoarseness of the voice and sometimes aphonia. The uvula is infiltrated and translucent. Instead of the salivation which is sometimes present, I have often noted a deficiency of moisture, the mucous membrane having a smooth, glossy appearance.

The digestive organs also suffer, as evinced by nausea, anorexia, and diarrhœa, with griping, colicky pains. There is scanty urine and dysuria, the urine sometimes presenting the coffee-appearance and containing albumen, blood-corpuscles, and epithelium.

The most troublesome symptoms have usually continued for from one to three or four weeks, leaving the patient to suffer for a much longer time with general debility, impaired digestion, and more or less disturbance of the renal functions.

The symptoms as above described imply a case of unusual severity, yet typical in its general features. While most of those cases that have fallen under my observation have been comparatively light, the analogy was sufficient to justify my diagnosis.

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Of the treatment, I have little to say, as it has been generally addressed to the symptoms and mainly palliative, leaving much to time and to the conservative efforts of nature.

Is there a question whether the symptoms described may not depend upon other causes than that to which I impute them? My answer is, I have not based my conclusions upon the observations of one or two, but of quite a number of cases; and, with all the circumstances bearing upon the history and ætiology of those cases before me, I felt entirely competent to judge as to the causative influence of the drug.

In presenting this paper, I have been prompted, not only by a desire for the truth, but by the belief that many practitioners have failed to recognize the toxical effects of a drug which they are almost daily prescribing, and that these effects, when observed, have been ascribed to other and unknown causes. Without assuming to instruct or enlighten my professional brethren, I have called attention to this subject, for the purpose of eliciting facts from the experience of other and, perhaps, closer observers.

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MINUTES OF A CONVENTION

HELD IN THE CITY OF ALBANY,

FEBRUARY 4th AND 6th, 1884,

AT WHICH THE

NEW YORK STATE MEDICAL ASSOCIATION

WAS ORGANIZED ON A PERMANENT BASIS.

IN compliance with an invitation issued during the last week of January, a number of members of the medical profession assembled in the parlors of the Delavan House, Albany, at 8.30 P. M., February 4, 1884.

After calling the roll, 76 being present (more entered the rooms later, making a total of about 100), the object of the convention was briefly stated by Dr. J. W. S. Gouley, of New York County, as follows:

In view of the dissension which has been created in the Medical Society of the State of New York by the radical change made in its code of ethics, it was suggested that a convention be held on the day preceding the session of the State Society, to discuss the question of this change in all its aspects, and finally to take such action as the majority assembled should decide upon. Therefore it is, gentlemen, that you have been invited to meet here by the members of the profession who have signed the call for the convention, which is as follows:

DEAR DOCTOR:

The undersigned, permanent members of, and delegates to, the Medical Society of the State of New York, request you to attend a meeting to be held in the parlors of the Delavan House,

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Albany, on Monday evening, February 4th, at 8.30 o'clock, to take into consideration the question of the Code of Ethics which will come up before that Society on the day following.

I. H. Abell, P. M.
John G. Adams, Del.
C. S. Allen, Del.
H. B. Allen, Del.
L. Barton, P. M.
R. B. Bontecou, P. M.
M. H. Burton, P. M.
Arch. M. Campbell, Del.
W. N. Coit, Del.
I. G. Collins, Del.
W. S. Cooper, P. M.
A. J. Dallas, P. M.
H. D. Didama, Ex-President.
E. D. Ferguson, P. M.
Austin Flint, P. M.
Austin Flint, Jr., Del.
C. C. F. Gay, P. M.
J. W. S. Gouley, P. M.
Wm. Govan, P. M.
Caleb Green, P. M.
J. C. Greene, P. M.
Desault Guernsey, P. M.
W. H. Helm, P. M.
H. C. Hendrick, P. M.
John H. Hinton, P. M.
Geo. G. Hopkins, Del.
B. L. Hovey, P. M.
Samuel T. Hubbard, P. M.
Jos. C. Hutchison, Ex-Pres.
N. C. Husted, P. M.
Frederick Hyde, Ex-Pres.
H. H. Langworthy, P. M.
Chas. A. Leale, Del.
E. M. Lyon, P. M.
E. M. Moore, Ex-Pres.
C. E. Nichols, P. M.
A. Pollard, P. M.
Thos. F. Rochester, Ex-Pres.
John D. Rushmore, P. M.
Conant Sawyer, Del.
Avery Segur, P. M.
W. P. Seymour, P. M.
E. R. Squibb, Ex-Pres.
Ely Van De Warker, Del.
R. H. Ward, P. M.
Francis V. White, Del.
Chas. S. Wood, P. M.
R. M. Wyckoff, P. M.,
and others.

Dr. H. D. Didama, of Onondaga County, was called to the chair, and Dr. Chs. S. Ward, of New York County, was appointed Secretary.

On taking the chair, Dr. Didama said:

As I understand it, the object of this conference is to exchange opinions regarding the proper course to be pursued by the adherents of the National Code of Ethics.

I need not remind you that, unkindly, unfairly, and in all probability by a pre-arranged plan, certain men grabbed the State Society two years ago.

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The catalogues, prepared with immense labor and the greatest care by our New York city brethren, show that the advocates of the "New Code" misrepresent the profession of this State.

Of course, the vast majority of the profession can protect themselves. They will not submit to the rule of a minority, whose leaders are unscrupulous. They will not consent to be cut off from affiliation with their brethren outside of this State. They will not tamely submit to have the great State of New York without a representation in the National Association, of which one of her most worthy sons is the honored president. If they can obtain their rights within the State Society, well and good; if not, they will form a new society.

What course shall be pursued? Shall we go into the meeting to-morrow night, present our facts and figures, appeal to the love of fair play which dwells in the heart of every decent physician, ask the minority to put things back as they were before the vote in 1882, and restore the harmony which once existed, and avoid a rupture which is otherwise inevitable—a rupture whose far-reaching consequences are not pleasant to contemplate; or shall we at once, without an effort to secure justice, or to give the minority an opportunity to recede from their hasty and miserable course, proceed to organize a new society which shall be in accord with our brethren everywhere outside of this State? If we pursue the former course, we may, and probably shall, fail; but we shall throw upon the minority-faction the responsibility for the rupture, and we shall not be accused of precipitate and unnecessary action.

One other matter is worthy of consideration. The remarkable activity of a few leaders of the minority is well known. They have been aided by certain medical journals in New York and elsewhere. These journals, in violation of all sense of propriety, have received our money for their support, and have then, week after week, thrust their misrepresentations, their boasts, their puerile arguments, and their pitiful sophistries into our unwilling faces.

I need not intimate that there is a remedy for this evil also; that there are medical journals, able and deserving our support, and disposed to give us at least civil treatment.

The freest expression of opinion is now invited.

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The following telegram from DR. JOHN P. GRAY, of Oneida County, was read: "Received the circular invitation. Sorry I can not be with you this evening, or this week, to join you and other brethren in efforts to uphold the dignity and unity of the profession in regard to the National Code and the medical educational institutions of the State."

The following telegram was also received: "Personal sickness detains me. Do not give up the National Code." Signed, J. H. ORTON, Binghamton, Broome County.

A letter was received from DR. C. C. F. GAY, of Erie County, saying that he was prevented from attending this meeting by sickness in his family.

DR. GOULEY then rose to make a report of the canvass of the State, which has lately been completed, and said:

MR. CHAIRMAN AND GENTLEMEN: In order to bring before you the subject which we are to consider to-night, let me crave your indulgence while I give you the results of a twelve-months' careful study of the whole question, and also a synopsis of the canvass which has been made under the auspices of the organization to uphold the National Code of Ethics—a body composed of representative men. This organization, as you know, has taken measures to ascertain the will of the members of the State Society and also of the profession throughout this State; and to that end an extensive correspondence has been entered into, canvassers have been employed, and circulars of inquiry (containing these three questions: 1st, Are you in favor of the National Code? 2d, the "New Code"? 3d, or No Code?) have been sent to all the physicians of this State whose names and addresses could be obtained, the number being upward of five thousand.

These names were all classified by counties and printed for distribution, with a view to corrections and additions and the reaffirmation of his position or vote by each physician or by others authorized to do so. In accordance with this plan, the following circular was printed on the first page of the proof:

NEW YORK, *November* 15, 1883.

DEAR DOCTOR: This proof, which shows the vote of the profession on the various codes of medical ethics, is forwarded to you for correction, if correction be needed. Please to observe:

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1. If your name has been placed under the wrong heading.[1]

2. If it has been credited to the wrong county or to more than one county.

3. If it has appeared more than once in the same county-list.

4. If it has been wrongly spelled.

5. If its initials are incorrect.

6. If you know of names that have been omitted in any of the several county-lists, give each name in full, P. O. address, town and county.

7. If you know of any practitioner, whose name appears in this catalogue, who has not received it.

8. If you know of any to be dead whose name is in this catalogue, give the date of his death.

The above are suggestions of possible errors. If you find such, or any other mistakes, be so kind as to communicate the fact without delay, by letter or postal-card, to the Corresponding Secretary, DR. J. W. S. GOULEY, 824 Madison Avenue, New York City.

You may keep this proof as a useful register, to date, of the vote of the profession on the codes of ethics.

In sending corrections, please give your P. O. address, town and county.

If no response is received from you in the course of ten days from the above date, it will be inferred that you have no corrections to offer, and your name will stand as it now is in the forthcoming issue of the corrected catalogue.

Corrections will be thankfully received also from secretaries of county societies.

COUNCIL:

Abram Du Bois,	Austin Flint,	Austin Flint, Jr.,
J. W. S. Gouley,	John H. Hinton,	Samuel T. Hubbard,
William T. Lusk,	Samuel S. Purple,	T. Gaillard Thomas.

A copy of this proof will be sent for correction to every member of the profession whose name and address are printed in the catalogue.

Thus, every one interested in this question had ten (10) days' time to make such corrections as he might wish to make, in all fairness. Therefore, those who have failed to offer corrections should not find fault with the corrected catalogue which was issued a few days ago. The corrections received were scrupu-

[1] The headings are, National Code, "New Code," No Code, Unclassified, Uncommitted. The unclassified are those who have been heard from but have not signified exactly where they stand. The uncommitted have not been heard from.

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lously noted, and all vouchers have been filed. Let us now look at the figures as they stand in the proof and in the corrected catalogue.

The proof is found to contain the names of	5,219
Since the appearance of the proof, new names have come in to the number of	67
Which number, added to the original, gives a total of	5,286
Since the beginning of the canvass there have died	83
	5,203
A number of names have been stricken off the proof, the majority on account of removal from the State, a few at their own request, and others by request of members of both parties for reasons which seemed fair and which I need not here state.	
The number of names thus stricken off is	201
Leaving a total (which is given in the corrected catalogue) of	5,002
Number of those who have not expressed their preference.	1,142
Total number of votes recorded	3,860
The recorded votes are as follows:	
For the National Code	2,547
For the "New Code"	1,040
For No Code	239
Unclassified	34
Total	3,860

It is evident from these figures that there is a majority for the National Code over the whole number of committed and uncommitted. That there is a majority of more than two thirds for the National Code over the "New Code," and a nearly two thirds majority for the National Code over the "New Code," No Code, and Unclassified combined.

It is now proper that you should know how stands the vote in the State Society; and here let me say that, although we have a

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majority, our adherents will do as they have done before—stay away—and we shall be out-voted. I doubt much if on Tuesday night we poll more than one hundred votes. According to the Transactions of 1883, the State Society has thirty-three retired members, who are not entitled to vote, and should have 386 voting members and delegates; but I can not count more than 382.

Of these there are for the National Code	193
For the "New Code"	134
For No Code	19
Uncommitted	36
	382

In spite of our manifest majorities, the "New-Code" party is still endeavoring to make it appear that we are in the minority, although they have had ample opportunity to make corrections in our catalogue, a copy of the proof having been mailed to every one whose name and address appeared therein.

Now, gentlemen, that you have before you these facts and figures, I leave you to decide what measures it may be wise for this assembly of representative men to take.

After some remarks upon the report just given, DR. E. D. FERGUSON, of Rensselaer County, moved that all the members and delegates present in Albany, who are in favor of the re-enactment of the National Code, be requested to attend the meeting of the State Society on Tuesday evening, for the purpose of protesting, by their vote, against the action taken by the Society in substituting the "New" for the National Code, and of endeavoring to secure the re-enactment of the National Code.

DR. THOMAS F. ROCHESTER, of Erie County, seconded the resolution, and said that the members and delegates would fail in their duty if they did not present this protest.

DR. AUSTIN FLINT, JR., of New York County, said:

MR. CHAIRMAN AND GENTLEMEN OF THE CONVENTION: It is more than a year since I have publicly spoken to an audience of friends on the questions which have at last divided the medical profession of the State of New York. As you all well know, thus far the battle-field in the warfare against the honor and dignity

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of the profession has been mainly in the city of New York. In the city of New York, the conspiracy, which has brought about the deplorable conflict that has been forced upon us, had its inception. The attack upon the most sacred traditions of our profession was there made with a malignant rancor that can only be fully appreciated by those who have been personally involved in this unhappy contest. I say it in all modesty, but we of the city of New York come before you as veterans from the front, bearing scars. If we venture to offer suggestions with regard to future action, if we beg you to learn a lesson from our own experience, it is because we are unhappily too familiar with the arrogance and the unscrupulous methods of our enemies within the profession. Our experience teaches us that but one course is now open to those who are unwilling to remain in the false and humiliating position in which we are placed. The proper course is for us to organize a new State Association, to be composed exclusively of those who refuse to countenance professional relations with irregular practitioners.

We all know the signification of the term irregular practitioner of medicine. It is not necessary to define it. We all know that no physician can be true to his calling and manhood and yet be willing to meet as a professional brother a charlatan or one who practices medicine under a dishonest designation.

The conspiracy which culminated in the adoption of the "New Code" by the State Society first made its appearance in the medical law of 1880, although its secret history is of a much earlier date. Many practitioners of more or less standing in the profession have long chafed under the restraints imposed upon them by our code of ethics. It is an almost unavoidable logical conclusion that the prominent advocates of the "New Code" were not content to confine themselves to consultation with their "regular" brethren, but yearned for the temporal advantages to be gained by consulting with any and all practitioners who could or would bring them patients. It seemed easy to bring this about if they could find a cloak for their action in the laws of the State, and could assume that they were not at liberty to refuse to consult with any practitioner formally recognized by such laws. It became necessary, then, to be able to point to a distinct definition of a legally qualified practitioner. This they were enabled to do by

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referring to the law of 1880, which was drawn by one who is now an earnest supporter of the "New Code." By the law of 1880, certain irregular practitioners, after complying with the prescribed conditions of registration, are recognized as legally qualified medical men. This being accomplished, the "New Code," which permits consultations with all legally qualified practitioners, was forced through the State Society, by methods which are known to us all. In my belief, the conspiracy, from its inception many years before 1880 to its culmination in the existing division of the profession of the State, has been carried on mainly in the city of New York; and this has been the work of a few bold and active men.

The profession of the city of New York began to realize the enormity of the action taken by the State Society, at a meeting of the Medical Society of the County of New York, held a few weeks before the meeting of the State Society, in 1883. The question came up at this meeting of the County Society; and the leader of the "New Code" movement, supported by a large number of adherents who blindly followed his dictation, displayed a degree of arrogance and assumption that has seldom, if ever, been witnessed in such a body. Many voices were raised in defense of the honor of the profession, but they were unheeded. One of the most eminent men in our ranks, respected alike for his age, attainments, and the purity of his professional and private life, was merely tolerated in making his protest; while the curt and peremptory orders of the "New Code" leader, to vote in a certain way on each question raised, were received with stormy applause and were implicitly obeyed. The disgust and alarm of the upholders of the National Code, however, were brought to a culmination by the appearance of the President of the New York Academy of Medicine, who, in a long speech, advocated the breaking down of the time-honored barriers which have heretofore separated the regular profession from charlatans.

Following this meeting of the County Society, three physicians of the city of New York, after consulting together with regard to the proper action to be taken, associated with themselves six others, the nine constituting the council of an organization "to uphold the National Code of Ethics." The Council afterward established what was called the "Central Organization," under the

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direction of which the entire regular profession of the State was carefully canvassed, with results that have been reported to you this evening. Subsequently, at a meeting of the County Society, called to fill vacancies in the number of delegates to the State Society, we were able to elect three delegates pledged to uphold the National Code; and from this we took no little courage.

Our next move was an endeavor to save to the regular profession the New York Academy of Medicine. Although the Academy has in force, as one of its by-laws, which every member has in writing pledged himself in honor to uphold, the National Code of Ethics, the public appearance of its President in support of the "New Code," and the presentation, as candidates for fellowship, of physicians known to be actively opposed to its constitution and by-laws, excited among its Fellows who remained loyal the gravest apprehensions. It is unnecessary for me to give more than a brief sketch of what was done in the Academy. At a stated meeting, resolutions were introduced and carried, re-affirming the by-laws and instructing the Committee on Admissions to do their duty and to report for election as Fellows no candidates known to be in opposition to the Code of Ethics of the Academy. These resolutions were violently attacked by certain members of the opposition, who undoubtedly saw in them a serious obstacle to the success of the plot to revolutionize the Academy as they had revolutionized the State and County Societies. They professed to be unable to see the inconsistency and dishonor of new members signing a pledge to support a constitution and by-laws to which they were known to be actively opposed. At a subsequent meeting, however, having in their interest the President and most of the officers, they rescinded these resolutions, in violation of all recognized rules of order, as well as of the special rules of the Academy. The rulings of the President on this occasion need little comment. They were unfair and unparliamentary, and simply illustrated the desperate methods which the conspirators are always prepared to adopt. I believe the action rescinding these resolutions to be null and void, and that it will be so decided in due time.

The next conflict was at the annual meeting for the election of officers of the Medical Society of the County of New York. Here the issue was sharply made in the nomination of candidates. This meeting was the largest ever held by the Society. Just be-

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fore the election of officers, the names of upward of eighty new members were proposed. A motion was promptly made to lay these nominations on the table until after the election. The motion to lay on the table was decided by the President to be out of order! Not content with this extraordinary and unnecessary ruling—for the motion would undoubtedly have been lost—the eighty odd candidates voted for their own admission. The "New Code" officers were then elected by a majority considerably in excess of eighty votes.

The loyal members of the profession in the County of New York, having thus exhausted all proper means of resistance in the existing societies, and with an untarnished record as regards the methods employed by them in the contest, have organized, on a permanent basis, the New York County Medical Association, composed exclusively of those who uphold the National Code of Ethics.

To-night we should organize a New York State Medical Association. The issue has been forced upon us. We stand in the presence of the actual fact of a divided profession. The State Society and the Society of the County of New York have seceded from the regular profession of the United States. We made no movement looking to the formation of a loyal State Association until the most vigorous efforts to redeem the existing societies had signally and hopelessly failed. We are now cast out of fellowship with the regular profession of this great country, as represented in the American Medical Association and in the medical societies of other States. We must redeem the State of New York. There remains but one course to pursue, and that is to form an association of our own. The bitter fight, the disgraceful spectacle of a contest between members of a devoted and honorable profession, are things of the past. The war is ended. Let us organize and live together in peace, working hand in hand for the advancement of the science of medicine. Let the men who are so blind or misguided as to think their course is right, or who can not resist the temptation to take tribute from those who persist in supporting the enemies of truth and of our universal science of medicine, go their own way and consult on terms of equality with any and all legally qualified practitioners of medicine, whatever form of charlatanism they may assume!

I hope, Mr. Chairman, that a New York State Medical Asso-

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ciation will be organized to-night, in affiliation with the regular profession of the United States; that the existing county societies whose membership is loyal will put themselves at once in affiliation with the new State Association; and that, in counties in which the existing societies can not be brought in bodily, new associations will be promptly organized, to be composed exclusively of members of the profession who uphold the National Code of Ethics.

While holding to these views, I am cordially in favor of the resolution offered by Dr. Ferguson, simply in order that we may put ourselves on record in the State Society, as I believe, for the last time.

Dr. C. G. Bacon, of Oswego County, was in favor of Dr. Ferguson's resolution, and of continued efforts from year to year until success should be achieved.

Dr. Ferguson, with the consent of Dr. Rochester, temporarily withdrew his resolution.

Dr. Austin Flint, of New York County, after stating that he thought it improbable that a two-thirds vote could be obtained in the State Society in favor of re-enacting the National Code of Ethics, and that consequently the time had arrived for the formation of a new State Association, introduced the following preamble and resolution:

The following facts and remarks are submitted as a preamble to a resolution: At the annual meeting of the Medical Society of the State of New York in 1881, a committee was appointed to present to the Society, at its next annual meeting, "suggestions" in regard to changes in the code of medical ethics.[1] Without hav-

[1] The subject referred to was presented by the committee on the President's address, on the second day, at the morning session, 1881, of the Medical Society of the State of New York. A part of the report of this committee is now quoted from the Transactions of 1881, p. 25.

. . . "3d. Relating to such changes in the code of ethics of the State Society as shall bring it into harmony with the present and changed condition of the profession."

"The Committee present that this suggestion of the President opens up an immense range of inquiry, and do not feel that it would be competent or prudent to make at this time any radical propositions, but the Committee offer the following resolution for the consideration of the Society:

"*Resolved*, That a special Committee of Five be appointed by the President, to be designated a 'Committe on the Code of Ethics,' whose duty it shall be to consider

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ing brought the subject to the attention of the medical profession throughout the State by means of discussions in medical journals and local societies, this committee reported, not "suggestions," but a "New Code" of ethics as a substitute for the code which was adopted by the Society in 1850. A large part of the latter code was omitted in the new code, and a radical change as regards professional relations with irregular practitioners was introduced. This new code was adopted by a two-thirds vote, fifty-two voting in the affirmative and eighteen in the negative, the number of voters thus being seventy. It is at once evident that, under the circumstances, this number of voters could not be regarded as fairly representing the sentiments of the Society; and still less could it be considered as representing the sentiments of the medical profession of the State. The Society, however, at that meeting, against the earnest solicitations of members who were present, refused to defer the action just stated.

This action of the Society was received with not less disapprobation than surprise, and was deemed of such great importance that pains were taken to ascertain the opinions of members of the profession throughout the State. The State has been thoroughly and fairly canvassed; and the result shows a large majority in favor of upholding the code of ethics for which the "New Code" was substituted.

The "New Code" in effect removes the barrier dividing members of the regular profession from irregular practitioners; and, in this point of view, it is the sentiment of a large majority of the medical profession of the State that the adoption of the "New Code" will prove greatly detrimental to the honor, the interests, and the usefulness of the profession.

An effect of the adoption of the "New Code" is the disfranchisement of the Society from its affiliation with the American Medical Association and other associations at home and abroad. It is the sentiment of a large majority of the members of the medi-

the whole question of desirable changes in the code, and who shall present to the Society, at the session of 1882, such suggestions on this subject as their observations and investigations may direct."

Signed, ALEX. HUTCHINS,
HARVEY JEWETT,
SAMUEL G. WOLCOTT.

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cal profession of the State, that this effect is an evil of no small importance.

Another effect, and an evil of great magnitude, is a division into two parties of the members of the State Society and of the medical profession of the State. This division actually exists; and it must continue if the action of the State Society be not reversed, inasmuch as disapproval of the action involves principles which carry with them moral obligations.

The reversal of this action, two years having elapsed, has not been effected; and, owing to the constitution of the membership of the State Society and the necessity for a two-thirds majority in order to secure this end, it does not seem probable that the action will be speedily rescinded.

In view of the foregoing facts, an unavoidable conclusion is that, among the delegates and permanent members of the Medical Society of the State of New York, there can not be the harmony and co-operation which are essential in order to carry out the objects of the Society, so long as an irreconcilable conflict of opinion on such an important matter as medical ethics shall continue. The organization of a distinct State Association has become a necessity.

A distinct association is demanded in order that a large majority of the members of the medical profession in the State of New York shall not be placed in a false position—disloyal to the National Code of Ethics.

It is demanded by a sense of respect, in the minds of the majority of the members of the medical profession in the State, for the status of legitimate medicine.

It is demanded by a due regard for the public good as dependent on the character and usefulness of the medical profession.

Justice, to the majority of the members of the medical profession of the State in respect of the right to be represented by delegates in our National Medical Association, and in other associations, demands it.

It is demanded as the only mode now available of securing to the majority of the members of the medical profession of the State the advantages of an association composed of members united by community of sentiment in matters relating to the honor, the interests, and the usefulness of our profession.

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Guided, therefore, by our convictions of duty, deploring the dissension which has been most unwisely and needlessly brought about in this State, appreciating fully the importance of the step to be taken, and regretting its necessity, be it

Resolved, That the members of the medical profession of the State of New York, here convened, do now unite in forming an organization to be known as the NEW YORK STATE MEDICAL ASSOCIATION.

DR. FREDERICK HYDE, of Cortland County, said:

MR. CHAIRMAN AND GENTLEMEN: I rise to second the motion for the adoption of the preamble and resolution just offered by Dr. Flint, believing that the paper embodies most clearly the points which this representative body of the medical profession desires most earnestly to consider:

First. Whether we shall continue our associate relations with the New York State Medical Society, since a minority of its members, under the shield of a two-thirds rule of a vote obtained in a meeting of the Society of a smaller attendance than had occurred for several years, repudiated and still continue to denounce the code of ethics adopted by the American Medical Association in 1847.

Since the vote taken by the Society at its annual meeting in 1883, repeating its repudiation of the Ethical Code of the American Medical Association, for myself I have seen but one safe, one honorable course to pursue, which is to organize a Voluntary State Medical Association.

This course would continue our representation, as it formerly existed, in the American Medical Association, giving to us the full benefits of the united learning, wisdom, and labors of the whole medical profession, which is already national.

Shall we join with the adherents of the so-called "New Code," in severing our union with an organization which proved the opening of a new era in developing the power of associated action, as seen in the unification of the medical profession of the United States?

The history of our National Society proves that the first words spoken or written upon the subject of its organization were within

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the Medical Society of the State of New York. When its organic structure was finished and it received its title, all its signers freely pledged their honor with a sacredness of purpose not always realized when acting under statutory enactments.

We believe that in the councils of a united, properly educated medical profession is a fitter place for the correction of errors of plan, or revision of its ethical enactments, and the creation and maintenance of the standards of professional attainments, than in a seceded section, with a code so pliant as to permit the freest intercourse with all sorts of doctors, even within the sacredness of the council-room of the sick, because the leveling process of statute enactments declares them legal practitioners.

Is it not true that a large majority of the physicians of this State are unwilling to rest tamely under the imputation of carrying on a war against the united profession of the whole country, because it respects the ethics of the American Medical Association?

Why are some of the counties of our once united State Medical Society, embracing an important membership always punctual and always influential, to be absent from its meeting tomorrow?

I can speak for the section of the State in which I have the honor to claim a professional home, that they are heartily tired of a contest which was brought upon them wrongfully.

They are anxious to see, without more loss of time and continual humiliation, a new State Voluntary Organization in harmony with the parent Association and the avowed object and prestige of the New York State Society at its formation, with the added incentive to young men to become its fellows at once if worthy, instead of passing a probation which may admit them when gray-headed, or still leave them vaguely expectant.

We declare that a course of conduct which disintegrates the medical profession is wrong; that it weakens the power of the profession to elevate itself by improved methods of conducting medical education, which to-day is the desideratum above all others.

I ask you: Has not the time come for organizing a new Voluntary Medical Association in the State of New York, on such a basis as will keep us in honorable alliance with the whole profession

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and redeem us from the charge of having seceded from the National Association?

Pardon me, gentlemen, for my attachment to the American Medical Association; as I had the honor of putting my signature to its constitution, by-laws, and code of ethics, on the day of its formation, and as I continue a permanent member up to this hour.

Would that the spirit of our gathering to-night might visit the great number of our professional brethren who are waiting for the key-note of a United Profession!

Our words of greeting to them are, an undivided medical profession on this continent under the folds of one flag.

Gentlemen, let us, before this meeting adjourns, adopt provisional measures for the formation of a Medical Association of the Empire State, which shall restore it to its once proud position in a united medical profession in line with her sister States.

But for the large, loyal permanent membership of the American Medical Association and the invincible purpose of the county medical societies of our State to be represented in the councils of the Association, our meeting to-night would not have been graced by the presence of the distinguished and renowned President of the American Medical Association, Dr. Austin Flint, Sr.

While engaged in the deliberations of this evening, a crowd of hallowed memories are here, reminding us of our service of delightful fellowship in both the State and National Societies. These sacred associations speak thrillingly to us of duties we owe to our exalted profession, that its grandest mission may be achieved.

DR. E. M. MOORE, of Monroe County, said:

MR. CHAIRMAN: I can not believe that the time has arrived for the formation of an asssociation separated from the State Society. In a matter like this, impatience is a fault. We should bide the time which is necessary to have a full expression of opinion from the whole State. You have already polled the State and find those of our opinions in a large majority. I have ever a faith that questions before the people are decided rightly. If they are incorrectly determined to-day, the decision is not final. Consciousness of wrong will never allow the matter to remain undisturbed. Medical men in remote districts have not yet made

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their influence felt. Delegates are elected for four years and have often misrepresented their constituencies. We should be patient and try again and again, until a sufficient time has elapsed to collect the correct opinion of the profession over the whole State. If we gain at the coming election an increase of votes as compared with the last one, my opinion is that we should renew our resolution for a vote the succeeding year, and so on until there can be no question with reference to the status of the profession in the State. The right will in the end prevail over the wrong in this unhappy contest in the profession as it did in the great contest on the subject of slavery, which many of us remember. Gentlemen must recollect that New York city is not the State of New York. The facility for coming together in a great city has, I fear, precipitated hasty action. I am, therefore, sir, in favor of postponing the organization of the association until Wednesday morning, at which time we shall be better informed, and therefore better prepared, with reference to our future action.

Dr. Goulby hoped that the preamble and resolution would be adopted to-night, and said that the object of such action is simply to save time; that he had come to Albany to assist in the formation of the new association, and not to attend the meeting of the State Society; and that if no association is to be formed he would prefer to leave by the next train. If action is taken to-night, of course it will not be binding in the event of the re-enactment of the National Code; but of the failure to secure such re-enactment he felt that there is not the shadow of a doubt. If it is decided that we should all attend the meeting on Tuesday night, he would abide by this decision and go and record his vote.

Dr. Rochester remarked that he was very glad to think that there was a prospect of a medical association which would be strictly voluntary without any hampering by State legislation. There might, however, be wisdom in considering what would be the effect of sundering one's connection with a county society. In Erie County, it is necessary for all regular physicians to join the County Medical Society or to give early notice of their intention to do so. Otherwise, members of that society are not allowed to consult with them, and if they attempt to practice, the censors of the society are ordered to proceed against them, no matter where their diploma comes from or by whom countersigned. It

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is also necessary for physicians to perfect their membership in the County Society before they can become members of the City Medical Association. Now the advocates of the "New Code" not only table all remonstrances addressed by the county societies to the State Society, but the Chairman of the "New-Code" Committee, Dr. Wey, of Elmira, pronounces all such petitions as rebellious; says that all the county societies must give in their adhesion to the "New Code," and, in case they do not, advises the State Society to proceed against them for contumacy. Dr. Rochester said he had not much fear of the effect of such threatened proceedings, but thought it well to take their possibility into consideration. For his part, he should in future have very little to do with State or county societies, and was entirely in favor of forming a New York State Medical Association.

Dr. C. G. Pomeroy, of Wayne County, would not consult with irregular practitioners, legalized or not, and favored action to-night.

Dr. Ely Van de Warker, of Onondaga County, said:

Certain issues growing out of this contest in the State Society must be grappled fearlessly, for they are inevitable. Peace can never be restored. We know this to-night just as well as we shall know it Wednesday morning. We shall go into the contest in the State Society on Tuesday night simply for form's sake and without a hope that we shall reverse the policy of the Society; therefore I can see no reason to delay the preliminary formation of the new State Association.

Another thing which appears to me just as certain to grow out of this division is this: unless the unscrupulous minority which controls the State Society is made up of brag and bluster, they must go on with the work. Their aggressive policy must extend to the county societies. It is one thing, by the preponderating influence of three great county organizations, to be able to control the State Society; it will be another thing to invade each county medical society, and coerce them all into conformity to the new order of things. To make the "New Code" the medical law of the land, they must do this. To allow each county medical society to quietly exist with the code of the American Medical Association as a part of its organic law is to admit cowardice, defeat, and a cringing fear of the storm they have raised. To do less than

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this will make them the laughing-stock of the world and an object of contempt of all right-thinking men. They can not go back; the day of strife is yet before them, as they will find out, and they must meet it. For this, let us prepare, let us fore-arm, let us prepare here in this great central association and make a home for those county medical societies that will resist coercion! Here they can come and find comfort and protection. We owe them this protection, and we shall do less than our duty if we neglect the opportunity.

In reply to Dr. Moore, I must steal some of his thunder. It is a very grand idea that right will live down wrong, but if right is going to thus live and conquer, it must do so by moral weapons. It will not do to stand upon this theory and do nothing. He has spoken of the great antislavery contest as an instance in which a terrible wrong was lived down, as though some quiet and inscrutable force did this. But how was it done? This survival of right over wrong was the result of men banding together in a great central association, bringing scattered forces together, and thus becoming a great moral power. The antislavery advocates did not attempt to advance their cause by sending delegates to the National Whig conventions or to the Democratic conventions, where they would have been treated with something like the bluster and bravado that has been measured out to us; but they banded together and developed forces that in the end accomplished a great moral revolution. I have to thank Dr. Moore for an apt illustration. With our delegates in the old society we are powerless; with a clear and undisputed majority of thousands scattered among the county societies, we have as yet been unable to do anything; but by cementing this great majority in a central organization and fusing together our scattered forces, we shall create a quiet but irresistible moral power that, as a final result, will conquer. To me it is evident that we must not postpone the organization of this association for a single hour.

Dr. Flint, Jr., said:

Mr. Chairman: I am opposed to any postponement of the provisional organization of a State Medical Association. I am discouraged and heart-sick to see a disposition on the part of any member of this convention to delay action. I have already seen defeat and disaster follow a policy of delay and the advocacy of

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temporizing measures. In my opinion, if we fail to make a provisional organization this evening, we are lost. The contest has already produced personal enmities that will never be healed and has broken up life-long friendships. As I stand before you now, I think I can hear the jeers and taunts with which we shall be greeted if it should occur that we separate to-night without forming our loyal organization. We have been told that the profession is not with us; and we are now in convention for the purpose of making an emphatic denial of that charge. If any one present imagine that those who have captured the State Society will fail to carry out their purposes to the end, he can not have appreciated the inexorable logic of past events. I, for one, shall never consent to remain in fellowship with those who are striving and will continue to strive to break down the barriers which have so long separated us from quacks. In the old societies, these men will always be found, and they can never be repressed. The time has come, in my opinion, to inaugurate a new era of peace and good-will. This is now demanded by the majority of the profession of the State and by our brethren in sister States and in the National Association. I am confident that we can best uphold the honor and the legitimate interests of the profession by organizing, now and here, the New York State Medical Association.

Dr. W. P. Seymour, of Rensselaer County, favored the preamble and resolution, the principles of which would eventually triumph.

Dr. G. W. Cooke, of Ulster County, was uncompromisingly in favor of immediate adoption of the preamble and resolution as the strongest protest that could be made against the position in which the State Society had been placed, and thought that action should be taken now or never.

Dr. Ferguson spoke for the preamble and resolution, and moved that they be adopted to-night, but that such adoption should be in force only in case the State Society shall fail on Tuesday evening to re-enact the National Code, otherwise the action to-night to be void. He also called attention to the fact that the formation of this Association does not debar any member from continuing his connection with the State Society, provided his interests or the interests of the profession make such a continuation of membership or delegateship desirable.

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DR. M. W. TOWNSEND, of Genesee County, moved that Dr. Flint's preamble and resolution be laid on the table until Wednesday.

The motion to lay on the table resulted in a tie—29 for, 29 against.

DR. GILLIS, of Franklin County, thought no action should be taken until after an appeal to the State Society.

DR. J. C. GREENE, President of the Erie County Medical Society :

MR. CHAIRMAN : The motion of Dr. Townsend to table the preamble and resolution of Dr. Flint meets with my hearty approval. As a member of the State Society from the County of Erie, and a representative of this county as its president, I am in favor of the resolution to table, for I think a great effort should be made to harmonize the existing factions in the profession and put an end to all strife and disturbance. Although elected as a National-Code man, I think precipitate action in this matter unwise and to be avoided. Now, from my stand-point, I can see only one method for us to adopt to-night, and it is to thoroughly canvass this question *pro* and *con*, but we should defer action until the vote has been taken in the State Society. I am sure my constituents will expect my vote and my influence to be on the side of union and harmony, if such can be obtained. It is to be hoped that the sense of propriety and a desire to be in affiliation with the American Medical Association and through it with the other State societies, as well as the medical societies of the civilized world, will induce the advocates of the "New Code" to rescind the action of 1882, and thereby restore the State Medical Society to its normal relation with other societies, and thus give it back all its lost prestige and glory.

Now, sir, if this result is obtained by to-morrow's vote, we shall have no use for Dr. Flint's preamble and resolution.

Mr. Chairman, it has been said on this floor that we of the western portion of the State know very little of the obloquy that the advocates of the National Code have had to endure in the city of New York from some of the "New-Code" adherents. We know that many of the gentlemen present have stood manfully and endeavored by argument and persuasion to avert this great calamity that has overtaken our time-honored society. We thank

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you for it, we honor you for the bold stand you have taken to uphold the dignity and honor of the profession. We have heard something, and read much, about the action of a few designing men who planned and carried into execution the demoralization of the Medical Society of the State of New York, by adopting what they term the "New Code," which really means no code. Now we wish to see for ourselves what the "New-Code" men propose to do by their vote to-morrow.

If they still persist in their suicidal course as regards this great question at issue, and we are again out-voted, then I shall be in favor of Dr. Flint's preamble and resolution.

Dr. D. Guernsey, of Dutchess County, said:

Mr. Chairman: Before the vote is again taken I desire to say a few words in favor of Dr. Flint's resolution. I am fully in accord with Dr. Moore, that if we can restore the National Code of Ethics this year, or the next, or in the next five years, it would be unwise to form a new State Association. Do the facts warrant us in believing that this can be done? Two years ago a minority of fifty-two members of the New York State Medical Society, although constituting at the time a two-thirds majority of the members present, abolished the National Code of Medical Ethics, and adopted the "New Code"; this, to say the least, was a great surprise to most of the members of the Society who uphold the National Code, as it was supposed that no change would be made that would in the least impair the spirit or effectiveness of the National Code. They were urged to delay action until a full expression of the views and wishes of the Society could be obtained. This they refused; and the "New Code" was adopted, as I have stated. No one for a moment believes—they do not believe it themselves—that if full notice had been given that at that meeting they were about to adopt a "New Code" of ethics differing so widely from the one under which the Society had so long flourished and grown up to its present position of honor and usefulness, they could have obtained the necessary two-thirds vote. A careful canvass of the delegates and members of the Society shows that at present there are 193 members for the National Code, 134 for the "New Code," and 19 for No Code. With such figures, I do not believe that we can restore the National Code. I am willing, if thought best, to make one more effort, and then,

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having placed ourselves on record, I do not think it wise to keep up the fight year after year. We are opposed to the "New Code." We are in favor of the National Code. Let us form an association of our own, send delegates to the American Medical Association, and place ourselves again in line with our medical brethren throughout the Union.

Dr. Gouley urged speedy action, because, he said, there is not the least chance that the National Code of Ethics will be re-enacted by the Medical Society of the State of New York, as long as a two-thirds majority is required. There is not a two-thirds majority; and he did not believe such a majority could be obtained in five years or more. Besides, even if the National-Code party were to prevail, it would be impossible for the two parties to work harmoniously together; there could never be that peace and good fellowship which are so much to be desired in all medical societies. These two parties can not now, and probably never will, agree. The best course, therefore, to be pursued is for them to part. Let us then have an association of our own, and leave others to do as they please with the State Society.

Those who uphold the National Code have an unquestionable right to form one or many associations in affiliation with the National and State Associations. The sooner they do so, the better for the honor of the profession and for the cultivation and advancement of the science of medicine. He was sorry to be obliged to disagree with his honored friend, Dr. Moore, for he did not think that the present formation of an association could justly be characterized as a hasty action. The National-Code party has had two years to reflect upon the course to be taken. This party has been defeated during two sessions of the State Society, and it will this year meet with the same fate. All have carefully considered the question; and if they are not now prepared to take final action they never will be, and might as well give up the idea of forming the association if the preliminary steps to that end be not immediately taken. In conclusion he said: "I fervently hope, Mr. Chairman, that Dr. Flint's preamble and resolution will be adopted to-night; and I have the honor to call upon you to close the discussion."

In closing the debate, the Chairman, Dr. Didama, earnestly advocated the action proposed by Dr. Flint. No harm, he thought,

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could come from forming our organization to-night. We can go to the State Society, enter our protest against the unfair and clandestine action of 1882, and ask that the National Code be restored. If, by some unexpected impulse of good judgment and kindly feeling, our appeal shall be heeded, then this association may be discontinued. But if the minority should persist in trampling on our rights—as we all believe they may—then, if we are men respecting ourselves and deserving the respect of our constituents, we shall re-assemble on Wednesday morning and end the fruitless and disgraceful wrangle of the past two years by finishing the good work we have so well begun this evening.

The motion to lay on the table was renewed and lost by a rising vote of 21 for tabling and 34 against.

Dr. Flint's preamble and resolution, with the limitation as to the time of enforcement as provided in the resolution offered by Dr. Ferguson, was then adopted; the vote, on motion of Dr. Rochester, being declared unanimous.

Dr. T. B. Reynolds, of Saratoga County, offered the following:

Resolved, That the objects of this Association shall be the cultivation and advancement of the science of medicine.

Carried unanimously.

Dr. Gouley then addressed the Chairman as follows:

I wish to offer a resolution relating to a plan of organization, prepared some weeks ago, because many of us have, for some time, been of opinion that the formation of a new association had become a necessity. This plan has been submitted to about twenty members, who have given it their entire approval and have advised its presentation to-night.

Resolved, That the following plan of organization be adopted:

1st. To facilitate the transaction of business, such as the selection of committees, the annual election of officers and of new members, etc., the State shall be divided into five geographical districts, to be called, respectively, the 1st, or Northern District; the 2d, or Eastern District; the 3d, or Central District; the 4th, or Western District; and the 5th, or Southern District.

These districts shall comprise the sixty counties of the State, arranged as follows:

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FIRST, OR NORTHERN DISTRICT.

Clinton, 30; Essex, 22; Franklin, 16; Hamilton, —; Herkimer, 29; Jefferson, 30; Lewis, 14; Oneida, 58; Oswego, 22; St. Lawrence, 13; Warren, 18. Total, 252

SECOND, OR EASTERN DISTRICT.

Albany, 39; Columbia, 15; Fulton, 9; Greene, 24; Montgomery, 16; Rensselaer, 74; Saratoga, 40; Schenectady, 10; Schoharie, 16; Washington, 12. Total, 255

THIRD, OR CENTRAL DISTRICT.

Broome, 31; Cayuga, 25; Chemung, 30; Chenango, 40; Cortland, 23; Delaware, 20; Madison, 21; Onondaga, 65; Otsego, 22; Schuyler, 16; Seneca, 22; Tioga, 19; Tompkins, 15. Total, 349

FOURTH, OR WESTERN DISTRICT.

Alleghany, 15; Cattaraugus, 14; Chautauqua, 29; Erie, 120; Genesee, 16; Livingston, 15; Monroe, 49; Niagara, 28; Ontario, 30; Orleans, 18; Steuben, 18; Wayne, 27; Wyoming, 14; Yates, 11. Total, 404

FIFTH, OR SOUTHERN DISTRICT.

Dutchess, 46; Kings, 249; New York, 783; Orange, 20; Putnam, 9; Queens, 41; Richmond, 13; Rockland, 14; Suffolk, 22; Sullivan, 20; Ulster, 23; Westchester, 47.[1] Total, 1,287

Grand Total..... 2,547

2d. A Nominating Committee shall be created, to consist of two members from each of the above-named districts—elected by the representatives of each district—and one appointed at large by the Chair. In all eleven members.

3d. The Nominating Committee shall name, subject to the approval of the Association, a President and four Vice-Presidents

[1] The figures following each county show the number of those in that county whose applications for fellowship the Council is now authorized to act upon, if they are forthwith sent as required in the printed form.

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—these five officers to come each from one of the five districts —a Recording Secretary, a Corresponding Secretary, and a Treasurer.

In addition, said Committee shall name two members from each district, who, together with the titular officers and one member appointed at large by the President-elect, shall constitute the Council, which shall manage the affairs of the Association.

The Nominating Committee shall suggest the time and place for holding the next session of the Association.

4th. The Council shall complete the organization, prepare a constitution and by-laws, in accord with this plan, to be presented at the next meeting of the Association, and file articles incorporating the New York State Medical Association and also county associations as branches of said New York State Medical Association. The Council shall also assist the President in securing scientific contributions.

5th. In case no meeting of this Association be held prior to May, 1884, the Council shall appoint delegates to the National Association and to State societies.

6th. The Council shall fill such vacancies as may occur in its body during the current year, except in the office of President and Vice-President.

7th. Ten members of the Council shall constitute a quorum.

8th. The initiation fee shall be five dollars, and the annual dues three dollars.

9th. The code of ethics, which shall form an integral part of the by-laws of this Association, shall be as follows :

The same as that adopted by the American Medical Association.

10th. The Association shall hold annually one session, which shall last three days or more.

The above plan of organization was adopted unanimously.

By Dr. Ferguson :

Resolved, That all physicians in the State of New York, who are in good standing in the present county societies and who subscribe to the code of ethics of this Association, can become members thereof upon paying the initiation fee and signing the constitution and by-laws.

Carried unanimously.

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By Dr. Rochester:

Resolved, That all questions relating to the admission of new members, prior to the permanent organization, shall be decided by the Council.

Carried unanimously.

By Dr. Hyde:

Resolved, That, after the formation of new county associations as branches of this Association, the members of said county associations may become members of the State Association by paying the initiation fee and signing the constitution and by-laws.

Carried unanimously.

Dr. Ferguson then reintroduced his resolution concerning the attendance at the session of the State Society on Thursday evening for protest against the present code and for the support of the National Code.

Carried unanimously.

The convention adjourned at 11.30 P. M., to meet at 9 A. M., Wednesday, February 6th.

As agreed on Monday, the members and delegates attended the meeting of the State Society on Tuesday night. The resolution of Dr. Didama was renewed by Dr. Moore, Dr. Didama being absent.

"*Resolved*, That all action taken at the annual meeting of 1882, in regard to changing the code of ethics, be repealed, leaving the code to stand as it was before such action was taken."

Dr. T. F. Rochester, of Buffalo, moved the adoption of this resolution; and, in making the motion, he said: I do it with the hope of restoring the unity, harmony, and good feeling of the proudest society in the Union. I hope that the remonstrances which have been sent in from the county medical societies will not simply be tabled and no attention paid to them. That was done last year. I think that perhaps we all have given way too much to our personal feelings. I think that on both sides party-ties have been stronger than they should be, and not in the interests of harmony. We should try to do what is best for the profession at large. I believe that there is a very strong feeling in the profession against the existence of the so-called 'New Code' of Ethics. If we go back to the time of its adoption, we find that when it was passed there were only seventy members present. Nevertheless it was legally passed.

At Cleveland, last year, the attempt was made to do what should have been done before the State Society took the position of seceding from the American Medical Association. The question as to whether any modification of the by-laws was necessary should have been brought before the American Medical Association. An attempt was made in that direction last year; but the motion would not be entertained

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for a moment, because this Society was in a state of rebellion. I do not believe that such a motion will be entertained so long as the "New Code" prevails; but I do believe that, if this Code should be repealed and the National Code restored, the members of this Society could bring the matter before the American Medical Association, and it would be received and acted upon.

DR. DIDAMA then entered the hall and made some remarks in advocacy of the resolution, in the interest of harmony, and for the good of the profession. He appealed to the sober second thought of the members and to their desire for the restoration of friendly intercourse. He sketched the peaceful condition of the Society prior to the unfortunate action of 1882. We looked forward to our annual meetings as to family reunions. We met as personal friends, we discussed scientific questions without acrimony, we gathered joyfully about the festive board, we parted reluctantly as brothers. The memory of our meeting did us good throughout the year. Now all this is changed. Angry altercation has taken the place of friendly debate; the Society is divided into two or three warring factions; and dissension has been established which may extend to a rupture of the Society and the conversion of old-time friends into permanent enemies. You all know the cause of this estrangement and bitterness. Two years ago, a committee of the Society, appointed solely to make suggestions regarding the Code of Ethics, took it upon themselves to report an entirely "New Code." This code was adopted. The news of its adoption was received by the profession generally with surprise and indignation. The indignation was increased when it came to be known that the meeting consisted of but seventy persons; that many of these had been informed of the proposed report of the committee and invited to be present, while the great mass of the profession had not been notified; and that the "New Code" was forced through, the majority refusing to refer the matter to the American Medical Association, or to leave it open for examination by the Society until its next meeting.

They refused to postpone action even for a single night.

Forty of the sixty county societies in the State hastened to record their disapproval of the action of the State Society and to demand a repeal of the "New Code."

They sent protests to our meeting last year. Their petitions were spurned. The assertion was made that the county meetings were packed, and that the real sentiment of the profession was largely in favor of the "New Code" or of no code at all.

To-day we are able to show, by the answers in the handwriting of the profession, that the adherents of the "New Code" form a minority in the State Society and only about one fifth of the five thousand regular physicians in the State.

And now, gentlemen who favor the "New Code" or no code, what do you propose to do? Can you afford to hold a position which the profession generally, in the State and out of the State, think you gained unfairly and by a sort of snap-judgment? You know that there has never been a moment since the meeting in 1882 when you could have repealed the National Code.

A few of you have discussed the question unceasingly in newspapers and medical journals and "symposia"; but you have not shaken the integrity of the profession. You still remain in a minority; you misrepresent the Society and the profession, and you know it.

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You have brought the State Society into disrepute with our medical brethren throughout the Union and throughout all English-speaking countries.

To the extent of your power, you have disfranchised us in a great National Association to which we are strongly attached. To the extent of your ability, you have cut us off from affiliation with our medical brethren throughout the world.

By persistence in a course, which we of the majority regard as unfriendly, unfair, and anti-republican, you have broken many a tie of friendship and have brought this Society to the very verge of a permanent rupture.

And what great compensation have you gained for all the evil your course has wrought?

You have stricken from the National Code the truthful statement that we do not regard certain irregular practitioners as fit persons to meet us in consultation; while you are ready to admit, one and all of you, that you hold the principles and the practice of these very irregulars in the utmost contempt. This, and this only, is your exceeding great reward.

And now, in closing, I make a final appeal to the justice and magnanimity of this Society.

I call upon the minority to consent to a restoration of the *status* existing prior to the meeting of 1882.

Then, if we choose, we can have a fair and friendly discussion of the subject on its merits.

Then we can carry our grievances, if we have any, to the American Medical Association and seek redress there. Let us bury the hatchet for ever. Let the fires of friendship be rekindled. Let us rejoin hands in our efforts to uphold and advance the one only science of medicine—a science with which the interests of humanity are indissolubly connected.

The answer to these appeals for harmony and fair play was made by Dr. D. B. St. John Roosa, the spokesman of the opposition. It was characteristic. It had no one word indicating a desire for union or an intention to relinquish a control surreptitiously obtained. It was appropriately followed by a solid vote of the combined "New Code" and no code factions not to recede from their course of unwisdom and injustice.

Thus the last spark of hope for redress was extinguished in the breasts of the National-Code party, and they went forward to complete their organization.

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THE NEW YORK STATE MEDICAL ASSOCIATION met in adjourned session, at 9 A. M., Wednesday, February 6, 1884.

DR. WARD, the Secretary, being absent, DR. E. D. FERGUSON was appointed to act as Secretary.

The minutes of the first meeting were read and approved, after Dr. Hyde had been allowed to make a correction in the resolution offered by him, relating to the membership of the Association.

DR. GOULEY moved that the Council, when elected, be authorized to prepare the minutes for publication and for circulation among the loyal physicians of the State. Carried.

The members from the five districts then met in separate portions of the room, and, after consultation, presented the following list of names as the Nominating Committee, Dr. Flint, Sr., being appointed at large by the Chair:

1st District—Dr. Ira H. Abell, Antwerp, Jefferson County; Dr. L. C. Dodge, Rouse's Point, Clinton County.

2d District—Dr. T. B. Reynolds, Saratoga Springs, Saratoga County; Dr. Thomas Wilson, Claverack, Columbia County.

3d District—Dr. A. D. Head, Syracuse, Onondaga County; Dr. Caleb Green, Homer, Cortland County.

4th District—Dr. Darwin Colvin, Clyde, Wayne County; Dr. Thomas F. Rochester, Buffalo, Erie County.

5th District—Dr. D. Guernsey, Amenia, Dutchess County; Dr. J. W. S. Gouley, New York City and County.

The Nominating Committee then retired into another room.

DR. H. O. JEWETT asked for information concerning the relation of this Association to the county societies.

The subject was informally discussed, and no action at present was favored, although it was considered desirable that county organizations in affiliation with this Association be formed, and that, at a proper time, such measures should be taken as might be necessary.

DR. FLINT, Jr., tendered the hospitalities of New York city for the next meeting of the Association.

DR. C. S. WOOD offered a resolution that the invitation of Dr. Flint be accepted. Carried.

An informal expression of opinion was then requested as to the

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proper time for the next meeting of the Association; and finally a poll was taken of those who had preferences as to the time of such meeting, which resulted in twenty-two favoring the third Tuesday in November, nine, the first Tuesday in February, and one, some time just before the next meeting of the American Medical Association.

Upon motion of DR. FLINT, Jr., the third Tuesday in November, 1884, was appointed as the time for the next meeting of the Association.

The report of the Nominating Committee, now in order, was read.

REPORT OF THE NOMINATING COMMITTEE.

The Nominating Committee organized by electing Dr. Thomas F. Rochester, of Erie County, Chairman, and Dr. Caleb Green, of Cortland County, Secretary. The Committee then proceeded to the nomination of the following officers:

For President—Dr. H. D. Didama, Onondaga County, 3d District.

For Vice-President—Dr. J. M. Crawe, Jefferson County, 1st District.

For Vice-President—Dr. Tabor B. Reynolds, Saratoga County, 2d District.

For Vice-President—Dr. B. L. Hovey, Monroe County, 4th District.

For Vice-President—Dr. N. C. Husted, Westchester County, 5th District.

For Recording Secretary—Dr. Caleb Green, Cortland County.

For Corresponding Secretary—Dr. E. D. Ferguson, Rensselaer County.

For Treasurer—Dr. John H. Hinton, New York County.

For Councilors—1st District—Dr. John P. Gray, Oneida County; Dr. Conant Sawyer, Essex County.

2d District—Dr. J. W. Moore, Albany County; Dr. Thomas Wilson, Columbia County.

3d District—Dr. Frederick Hyde, Cortland County; Dr. Ely Van de Warker, Onondaga County.

4th District—Dr. E. M. Moore, Monroe County; Dr. M. W. Townsend, Genesee County.

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5th District—Dr. E. R. Squibb, Kings County; Dr. A. Flint, Jr., New York County.

On motion of Dr. E. M. Moore, the report of the Nominating Committee was accepted, and it was then adopted unanimously.

Dr. Didama, after thanking the Association for the honor conferred upon him, appointed Dr. J. W. S. Gouley member of the Council at large.

Dr. A. D. Head moved that a committee be appointed by the Chair to prepare a proper form of certificate of fellowship and an appropriate seal for the Association. Carried.

Dr. Ferguson moved that the Council be authorized to receive new members. Carried.

Dr. Van de Warker moved that a Committee of three be appointed to secure the co-operation of a medical journal in sympathy with the wishes and interests of this Association. Carried, and referred to the Council for the appointment of such committee.

Dr. H. B. Allen moved that the Corresponding Secretary be directed to provide blank applications for fellowship. Carried.

A meeting of the Council was directed to be called immediately after the adjournment of the Association.

The Association then adjourned to meet in New York city, on the third Tuesday in November, 1884.

E. D. Ferguson, *Acting Secretary.*

The following was presented by the Secretary for the signature of the members present; and authority was given to add the names of absent members, delegates, and others, who may wish to join as founders of the Association:

The undersigned agree to unite in the foundation of the New York State Medical Association, in accordance with resolutions which were adopted on Monday the 4th, and Wednesday the 6th of February, 1884.

FIRST, OR NORTHERN DISTRICT.

Clinton County—

W. N. Coit, Champlain. E. M. Lyon, Plattsburg.
L. C. Dodge, Rouse's Point.

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ESSEX COUNTY—
Lyman Barton, Willsborough.
E. F. Edgerly, Moriah Centre.
Conant Sawyer, Au Sable Forks.

FRANKLIN COUNTY—
William Gillis, Fort Covington.

HAMILTON COUNTY—

HERKIMER COUNTY—

JEFFERSON COUNTY—
Ira H. Abell, Antwerp.
J. Mortimer Crawe, Watertown.
Charles M. Johnson, Watertown.

LEWIS COUNTY—

ONEIDA COUNTY—
John P. Gray, Utica.
H. N. Porter, New York Mills.

OSWEGO COUNTY—

ST. LAWRENCE COUNTY—

WARREN COUNTY—
M. R. Peck,[1] Glens Falls.

SECOND, OR EASTERN DISTRICT.

ALBANY COUNTY—
Theodore P. Bailey, Albany.
J. W. Moore, Cohoes.
S. Peters, Cohoes.
R. H. Sabin, West Troy.
W. B. Sabin, West Troy.

COLUMBIA COUNTY—
Thomas Wilson, Claverack.

FULTON COUNTY—
Isaac De Zouche, Gloversville.

GREENE COUNTY—

MONTGOMERY COUNTY—
Alexander Ayres, Fort Plain.
William H. Robb, Amsterdam.

RENSSELAER COUNTY—
Charles S. Allen, Greenbush.
W. N. Bonesteel, Troy.
Charles H. Burbeck, Troy.
M. H. Burton, Troy.
W. S. Cooper, Troy.
E. D. Ferguson, Troy.
William Finder, Troy.
J. C. Hannon, Hoosick Falls.

[1] Deceased.

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J. B. Harvie, Troy.
H. E. Mitchell, Troy.
C. E. Nichols, Troy.
W. H. Nichols, W. Sand Lake.
Z. Rousseau, Troy.
W. Wotkyns Seymour, Troy.

SARATOGA COUNTY—

Myron N. Babcock, Saratoga Springs.
George F. Comstock, Saratoga Springs.
Charles E. Creal, Saratoga Springs.
Charles S. Grant, Saratoga Springs.
William Hodgman, Saratoga Springs.
J. H. Lancashire, Saratoga Springs.
Robert E. McEwen, Saratoga Springs.
Tabor B. Reynolds, Saratoga Springs.

SCHENECTADY COUNTY—

S. G. De La Mater, Duanesburgh.

SCHOHARIE COUNTY—

WASHINGTON COUNTY—

THIRD, OR CENTRAL DISTRICT.

BROOME COUNTY—

J. H. Chittenden, Binghamton.
J. G. Orton, Binghamton.
F. W. Putnam, Binghamton.
C. B. Richards, Binghamton.

CAYUGA COUNTY—

Carlos F. Macdonald, Auburn.

CHEMUNG COUNTY—

CHENANGO COUNTY—

Geo. W. Avery, Norwich.

CORTLAND COUNTY—

Caleb Green, Homer.
Henry C. Hendrick, McGrawville.
Frederick Hyde, Cortland.
H. O. Jewett, Cortland.

DELAWARE COUNTY—

MADISON COUNTY—

ONONDAGA COUNTY—

Henry B. Allen, Baldwinsville.
Alexander J. Dallas, Syracuse.
H. D. Didama, Syracuse.
George W. Earll, Skaneateles.
Henry L. Elsner, Syracuse.
A. D. Head, Syracuse.

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Jonathan Kneeland, S. Onondaga.
Israel Parsons, Marcellus.
L. C. Skinner, Belle Isle.
J. O. Slocum, Camillus.
Ely Van de Warker, Syracuse.

OTSEGO COUNTY—
J. K. Leaning, Fly Creek.

SCHUYLER COUNTY—

SENECA COUNTY—
E. Lester, Seneca Falls.
E. J. Schoonmaker, Magee's Corners.

TIOGA COUNTY—

TOMPKINS COUNTY—
J. E. Beers, Danby.
William Fitch, Dryden.

FOURTH, OR WESTERN DISTRICT.

ALLEGANY COUNTY—

CATTARAUGUS COUNTY—

CHAUTAUQUA COUNTY—
Edward Ames, Sherman.
William Chace, Mayville.
H. J. Dean, Brocton.
Thomas D. Strong, Westfield.

ERIE COUNTY—
J. B. Andrews, Buffalo.
John Cronyn, Buffalo.
C. C. F. Gay, Buffalo.
Joseph C. Greene, Buffalo.
F. F. Hoyer, Tonawanda.
William Ring, Buffalo.
Thomas F. Rochester, Buffalo.
W. S. Tremaine, Buffalo.
C. C. Wyckoff, Buffalo.

GENESEE COUNTY—
John R. Cotes,[1] Batavia.
A. P. Jackson, Oakfield.
W. B. Sprague, Pavilion.
M. W. Townsend, Bergen.

LIVINGSTON COUNTY—
John W. Gray, Avon.

MONROE COUNTY—
B. L. Hovey, Rochester.
E. M. Moore, Rochester.
R. C. Reynolds, Pittsford.

NIAGARA COUNTY—

ONTARIO COUNTY—
F. R. Bentley, Cheshire.
H. W. Nichols, Canandaigua.
E. W. Simmons, Canandaigua.
Joseph T. Smith, Canandaigua.

[1] Deceased.

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ORLEANS COUNTY—
James Chapman, Medina. H. C. Tompkins, Knowlesville.

STEUBEN COUNTY—

WAYNE COUNTY—
J. N. Arnold, Clyde. C. G. Pomeroy, Newark.
Darwin Colvin, Clyde.

WYOMING COUNTY—

YATES COUNTY—

FIFTH, OR SOUTHERN DISTRICT.

DUTCHESS COUNTY—
C. N. Campbell, Poughkeepsie. J. D. Leroy, Poughkeepsie.
G. H. Codding, Amenia. J. G. Porteous, Poughkeepsie.
William Cramer, Poughkeepsie. M. T. Pultz, Stanfordville.
Desault Guernsey, Amenia. Henry Slack, Fishkill-on-Hudson.
C. M. Kittridge, Fishkill-on-Hudson.

KINGS COUNTY—
George W. Baker, Brooklyn. Avery Segur, Brooklyn.
Joseph C. Hutchison, Brooklyn. E. H. Squibb, Brooklyn.
E. R. Squibb, Brooklyn.
J. D. Rushmore, Brooklyn. Richard M. Wyckoff, Brooklyn.

NEW YORK COUNTY—
John G. Adams,[1] John H. Hinton,
Nathan Bozeman, Abbott Hodgman,
E. M. Cameron, Samuel T. Hubbard,
Allen S. Church,[1] Edward G. Janeway,
W. S. Conover, Charles A. Leale,
William Detmold, Jared Linsly,
Frederic S. Dennis, William T. Lusk,
Abram DuBois, S. B. Wylie McLeod,
Austin Flint, Thos. H. Manley,
Austin Flint, Jr., Henry D. Nicoll,
William H. Flint, Samuel S. Purple,
John W. S. Gouley, Lewis A. Sayre,
Frank H. Hamilton, Lewis H. Sayre,

[1] Deceased.

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Isaac E. Taylor,
T. Gaillard Thomas,
Carlos P. Tucker,
Charles S. Ward,
Charles S. Wood,
Whitman V. White,
William T. White,
Joseph Wiener,
William Young.

ORANGE COUNTY—

PUTNAM COUNTY—
G. W. Murdock, Cold Spring.

QUEENS COUNTY—
John Davidson,[1] Hempstead.

RICHMOND COUNTY—
Alfred L. Carroll, New Brighton.
F. U. Johnston, New Brighton.

ROCKLAND COUNTY—
William Govan, Stony Point.

SUFFOLK COUNTY—
W. D. Woodend, Huntington.

SULLIVAN COUNTY—

ULSTER COUNTY—
G. W. Cooke, Kingston.
Aug. Hühne, Kingston.
E. McKenzie, Port Ewen.

WESTCHESTER COUNTY—
Isaac G. Collins, Sing Sing.
Nathaniel C. Husted, Tarrytown.
William C. Pryer, New Rochelle.

Total number of Founders, 164.

MINUTES OF THE COUNCIL.

The Council met on February 6, 1884, immediately after the adjournment of the Association; Dr. Didama in the Chair, and Dr. Caleb Green acting as Secretary.

Present—Drs. Didama, Reynolds, Husted, Hinton, Ferguson, Green, Van de Warker, Flint, Jr., Townsend, Sawyer, E. M. Moore, Wilson, Hyde, and Gouley.

[1] Deceased.

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On motion, the Chairman appointed Drs. A. Flint, Jr., J. W. S. Gouley, and N. C. Husted a Special Committee on the preparation of a Constitution and By-Laws for the Association, with instructions to report to the Council at its next meeting.

Dr. E. D. Ferguson was appointed a Committee, associating with himself three or four other members, to prepare and file Articles of Incorporation of the Association. Dr. Ferguson was also appointed as a Committee to prepare, print, and issue a circular and a blank application for membership.

It was moved and seconded that the members of the Council, residing in each of the five districts, shall constitute, in such district, a committee on new members; and that applications for membership shall be forwarded to any member of the Council in the district where the applicants reside. Carried.

Moved and seconded that each member of the Council be, and is hereby requested to solicit scientific contributions for the next meeting of the Association, and to ask the authors to send the titles of their papers to the Corresponding Secretary, early in September next. Carried.

It was moved by Dr. Van de Warker, and seconded, that each Fellow who may wish to read a paper to the Association be requested to print a synopsis thereof for distribution to the Fellows, at the next meeting. Carried.

Dr. A. Flint, Jr., Dr. Van de Warker, and Dr. Gouley were, on motion, appointed a committee to secure the co-operation of a medical journal in sympathy with the wishes and interests of the Association.

On motion, the Secretaries and Dr. Gouley were appointed a Committee on Publication, with instructions to prepare the proceedings of the present session of the Association and of the Council for immediate and extended distribution.

On motion of Dr. Van de Warker, it was resolved that the members of this Association shall be designated Fellows. Carried.

Dr. E. M. Moore, Dr. A. Flint, Jr., and the Treasurer, Dr. J. H. Hinton, were appointed a committee to prepare a seal for the use of the Association, and also a form of certificate of fellowship.

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It was resolved to hold the next meeting of the Council in the city of Washington, D. C., at the time of the meeting of the American Medical Association, in May, 1884.

The Council then adjourned to meet in Washington.

CALEB GREEN, *Recording Secretary.*

NOTE.—Dr. Squibb, of Kings County, being prevented by other pressing engagements from acting as a member of the Council, the vacancy has been filled by the appointment of Dr. J. C. Hutchison, of Kings County.

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ARTICLES OF INCORPORATION

OF THE

NEW YORK STATE MEDICAL ASSOCIATION.

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ARTICLES OF INCORPORATION.

STATE OF NEW YORK
COUNTY OF NEW YORK.

WE, Henry D. Didama, J. Mortimer Crawe, Tabor B. Reynolds, Bleecker L. Hovey and Nathaniel C. Husted, being of full age and citizens of the United States, a majority of whom are citizens of the State of New York, do by these presents, pursuant to and in conformity with the provisions of an Act of the Legislature of the State of New York, entitled "An Act for the incorporation of Societies and Clubs for certain lawful purposes" and known as Chapter 267 of the laws of 1875, and the several Acts amendatory thereof, associate ourselves together and form a society under the name of the

NEW YORK STATE MEDICAL ASSOCIATION.

The objects of said Society are, to bring together in association for the purposes of mutual and professional benefit, members of the profession of medicine of the State of New York, having a community of sentiment relating to the honor, the interests and the usefulness of the profession, and to cultivate and advance the science of medicine.

The number of Trustees of said Society shall be five whose names are as follows:

HENRY D. DIDAMA,
J. MORTIMER CRAWE,
TABOR B. REYNOLDS,
BLEECKER L. HOVEY,
NATHANIEL C. HUSTED.

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The names of the Trustees of said Society for the first year of its existence are:

HENRY D. DIDAMA,
J. MORTIMER CRAWE,
TABOR B. REYNOLDS,
BLEECKER L. HOVEY,
NATHANIEL C. HUSTED.

The principal office or headquarters of said Society shall be in the City and County of New York.

IN WITNESS WHEREOF we have hereunto set our hands and seals.

HENRY D. DIDAMA [L. S.]
J. MORTIMER CRAWE [L. S.]
TABOR B. REYNOLDS, [L. S.]
BLEECKER L. HOVEY [L. S.]
NATHANIEL C. HUSTED. [L. S.]

STATE OF NEW YORK,
ONONDAGA COUNTY CLERK'S OFFICE, *ss:*

I, Gustavus Sniper, Clerk of said County, and of the Supreme and County Courts therein, which are Courts of Record, do hereby certify that De Forrest Settle, whose name is subscribed to the certificate of the proof or acknowledgment of the annexed instrument, was, at the time of taking such proof or acknowledgment a notary public in and for said County, and duly authorized to take the same; and that I am well acquainted with his handwriting, and verily believe the signature to said certificate to be genuine. And I further certify that said instrument and the acknowledgment thereof are executed according to the existing laws of the State of New York.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said County and Courts, at the City of Syracuse, this 22d day of March, 1884.

SEAL.

GUSTAVUS SNIPER, *Clerk.*

STATE OF NEW YORK,
COUNTY OF ONONDAGA, *ss:*

On this 22d day of March 1884, personally appeared before me Henry D. Didama, to me known and known to me to be the

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individual described in and who executed the foregoing instrument, and who acknowledged to me that he executed the same.

DE FORREST SETTLE, *Notary Public.*

STATE OF NEW YORK,
COUNTY OF NEW YORK, *ss:*

On this 2d day of May personally appeared before me J. Mortimer Crawe to me known and known to me to be the individual described in and who executed the foregoing instrument and who acknowledged to me that he executed the same.

SEAL.

WM M. HOES
Notary Public
New York City and Co.

STATE OF NEW YORK,
COUNTY OF SARATOGA, *ss:*

On this 28th day of March 1884, personally appeared before me Tabor B. Reynolds, to me known and known to me to be the individual described in and who executed the foregoing instrument and who acknowledged to me that he executed the same.

A. BOCKES
Justice of the Supreme Court.

STATE OF NEW YORK,
MONROE COUNTY CLERK'S OFFICE.
ROCHESTER, N. Y.

I, Henry D. McNaughton, Clerk of the County of Monroe of the County Court of said County, and of the Supreme Court, both being Courts of Record having a common seal, DO CERTIFY, that E. H. C. Griffen, Esq., was at the date of the certificate of Proof or acknowledgment of the annexed instrument in writing, a Notary Public, in and for said County, duly authorized to take the same; that I am well acquainted with his handwriting, and verily believe that the signature to said Certificate is genuine, and that the annexed instrument is executed and acknowledged according to the laws of this State.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seal of said County and Courts, this 24th day of March, A. D. 1884.

SEAL.

H. D. MCNAUGHTON, *Clerk.*

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STATE OF NEW YORK, } ss:
COUNTY OF MONROE. }

On this 24 day of March 1884, personally appeared before me Bleecker L. Hovey to me known and known to me to be the individual described in and who executed the foregoing instrument and who acknowledged to me that he executed the same.

E. H. C. GRIFFEN
Notary Public.

SEAL.

STATE OF NEW YORK, } ss:
WESTCHESTER COUNTY, }

I, James F. D. Crane, Clerk of the County aforesaid and also Clerk of the County and Supreme Courts, in and for said county, the same being Courts of Record, DO HEREBY CERTIFY that E. Clarence Hyatt, Esquire, whose name is subscribed to the Certificate of acknowledgment of the annexed instrument was, at the date of said Certificate, a Notary Public in and for said County, residing in said County, appointed and sworn, and duly authorized to take the same; and I am well acquainted with the handwriting of said Notary Public, and verily believe that the signature to said Certificate is genuine. I further certify that said instrument is executed and acknowledged according to the laws of the State of New York.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seal of the said Courts and County, the 31st day of March, 1884.

SEAL.

JAMES F. D. CRANE, *Clerk.*

STATE OF NEW YORK, } ss.
COUNTY OF }

On this 31st day of March 1884, personally appeared before me Nathaniel C. Husted to me known and known to me to be the individual described in and who executed the foregoing instrument and who acknowledged to me that he executed the same.

E. CLARENCE HYATT, *Notary Public.*

STATE OF NEW YORK, } ss.
CITY AND COUNTY OF NEW YORK, }

I, Patrick Keenan, Clerk of the said City and County, and Clerk of the Supreme Court of said State for said County, DO

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CERTIFY, That I have compared the preceding with the original Certificate of Incorporation of New York State Medical Association on file in my office and that the same is a correct transcript therefrom, and of the whole of such original.

IN WITNESS WHEREOF, I have hereunto subscribed my name, and affixed my official seal, this 2 day of May 1884.

SEAL.

PATRICK KEENAN, *Clerk.*

STATE OF NEW YORK,
OFFICE OF THE SECRETARY OF STATE, } *ss:*

I have compared the preceding with the original Certificate of Incorporation of New York State Medical Association with acknowledgment thereto annexed, filed and recorded in this office on the third day of May 1884, and do HEREBY CERTIFY the same to be a correct transcript therefrom and of the whole of the said original.

WITNESS my hand and the seal of office of the Secretary of State, at the City of Albany, this 3d day of May one thousand eight hundred and eighty-four.

SEAL.

JOSEPH B. CARR,
Secretary of State.

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CONSTITUTION AND BY-LAWS,

ADOPTED 1884.

CONSTITUTION.

ARTICLE I.

SECTION 1. This Association shall be called THE NEW YORK STATE MEDICAL ASSOCIATION.

SEC. 2. The objects of the Association shall be:

First. The cultivation and advancement of the Science of Medicine.

Second. The promotion of public health.

Third. The maintenance of the honor and character of the Medical Profession.

Fourth. The establishment and furtherance of cordial professional relations and fellowship between the Medical Profession of the State of New York and the Profession of other States of the United States and of foreign countries, through the Medical Associations and Societies of such States and countries.

ARTICLE II.

SEC. 1. For the purposes of this Association, the State shall be divided into five geographical districts, to be called, respectively, the 1st, or Northern District; the 2d, or Eastern District; the 3d, or Central District; the 4th, or Western District; and the 5th, or Southern District.

These districts shall comprise the sixty counties of the State, arranged as follows:

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First, or Northern District.

Clinton, Essex, Franklin, Hamilton, Herkimer, Jefferson, Lewis, Oneida, Oswego, St. Lawrence, Warren.

Second, or Eastern District.

Albany, Columbia, Fulton, Greene, Montgomery, Rensselaer, Saratoga, Schenectady, Schoharie, Washington.

Third, or Central District.

Broome, Cayuga, Chemung, Chenango, Cortland, Delaware, Madison, Onondaga, Otsego, Schuyler, Seneca, Tioga, Tompkins.

Fourth, or Western District.

Alleghany, Cattaraugus, Chautauqua, Erie, Genesee, Livingston, Monroe, Niagara, Ontario, Orleans, Steuben, Wayne, Wyoming, Yates.

Fifth, or Southern District.

Dutchess, Kings, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Sullivan, Ulster, Westchester.

SEC. 2. This Association shall be composed of Fellows, who are regular practitioners of medicine or regular graduates in medicine, residing in the State of New York.

SEC. 3. All physicians in the State of New York who are in good standing in existing county societies, in the New York Academy of Medicine, or in county or district associations or societies in affiliation with this Association, and who subscribe to the code of ethics of this Association, may become Fellows, upon paying the initiation-fee and signing the Constitution and By-Laws; provided that each candidate for fellowship shall make a formal application therefor, and that this application shall have been approved in writing by one or more members of the Council from the district in which such candidate resides. The candidate's application shall then be transmitted, through the Corresponding Secretary, to the Council, for final action.

SEC. 4. No physician can at any time become a Fellow of this Association who does not subscribe to its code of ethics; and no physician can become a Fellow, after the first regular meeting of

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the Association in November, 1884, who is not a member in good standing, with no charges pending against him, in a regular county society, the New York Academy of Medicine, or in a county or district association or society in affiliation with or recognized by this Association.

SEC. 5. Fellows of the Association who participated in the foundation of the same, at the Convention held in the city of Albany on February 4th and 6th, 1884, shall be classified as Founders and shall be so indicated in all lists of Fellows.

SEC. 6. Fellows of the Association, who have qualified or shall have qualified as such at or previous to the first regular meeting of the Association, in November, 1884, shall be classified as Original Fellows and shall be so indicated in all lists of Fellows.

SEC. 7. The Presidents for the time being of all county or district associations or societies, such associations or societies being in affiliation with this Association, upon payment of the annual dues and assessments, shall be regarded as Fellows. Such Fellows shall be classified as Delegates, and shall be so indicated in all lists of Fellows.

SEC. 8. All county and district associations or societies in affiliation with this Association shall be entitled to representation in this Association by their Presidents for the time being acting as delegates; provided that such associations or societies shall pay the annual dues and assessments of such delegates, who shall not be required to pay initiation-fees.

SEC. 9. In addition to the ordinary Fellows of the Association, the Council, with the consent of the Association, may appoint, at any annual meeting, Honorary Fellows; provided that such Honorary Fellows shall have been nominated, at the annual meeting immediately preceding, by three Fellows. Such Honorary Fellows must be regular physicians, not residents of the State of New York, who have been long eminent in the profession, and not more than five Honorary Fellows shall be appointed at any annual meeting. The total number of Honorary Fellows shall be limited to fifty.

SEC. 10. The Council, with the consent of the Association, may appoint, at any annual meeting, Corresponding Fellows; provided that such Corresponding Fellows shall have been nominated, at the annual meeting immediately preceding, by three Fellows. Such Corresponding Fellows must be regular physicians of distinction,

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not residents of the State of New York, who are actively engaged in the cultivation of medical science, and not more than five Corresponding Fellows shall be appointed at any annual meeting. The total number of Corresponding Fellows shall be limited to fifty.

SEC. 11. Honorary Fellows and Corresponding Fellows shall have all the privileges of ordinary Fellows, except that they shall not be eligible to any office in the Association and shall not have the right to vote in the meetings of the Association. They shall not be required to pay any initiation-fees, dues, or assessments.

ARTICLE III.

SEC. 1. The titular officers of the Association shall be a President and four Vice-Presidents (these five officers to come each from one of the five districts), a Recording Secretary, a Corresponding and Statistical Secretary, and a Treasurer. In addition, there shall be elected two Fellows from each district, and one Fellow shall be appointed at large by the President-elect, who, with the titular officers, shall together constitute the Council of the Association.

SEC. 2. The President and the Vice-Presidents shall be elected for the term of one year. The elected members of the Council shall serve, one from each district for the term of one year, and one from each district for the term of two years. The Secretaries and the Treasurer shall each be elected for the term of three years. The member of the Council appointed at large by the President-elect shall serve for the term of one year.

SEC. 3. The President-elect shall, with the consent of the Association, appoint each year, to serve during his term of office, such standing committees as may, in his judgment, be necessary to properly carry out the objects of the Association.

ARTICLE IV.

SEC. 1. This Constitution shall go into effect at the annual meeting of the Association in November, 1884.

ARTICLE V.

SEC. 1. No part of this Constitution shall be abolished, altered or amended, and no addition shall be made thereto, except at a

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regular meeting of the Association, after due notice of such alterations or additions shall have been given in writing by a Fellow at the regular meeting immediately preceding, and then only by a vote of three fourths of the Fellows present and voting.

BY-LAWS.

ARTICLE I.

MEETINGS AND NOMINATIONS.

SECTION 1. The Association shall hold regular meetings, one in each year, at such time and place as shall be designated by the Council, each meeting to continue for at least three days.

SEC. 2. During the morning session of the first day of each regular meeting, a Nominating Committee shall be constituted, composed of two representatives from each district, to be appointed by the Fellows from the respective districts present at the meeting, and one member appointed at large by the President, who shall present, for approval and adoption by the Association, a full list of officers and members of the Council to be elected.

SEC. 3. In case the list or any part of the list of nominees presented by the Nominating Committee be not approved and adopted by the Association, the Nominating Committee shall present new nominees for such offices as may remain unfilled, and shall continue so to do until all the officers of the Association and members of the Council shall be chosen.

SEC. 4. The officers of the Association and members of the Council, at the expiration of their respective terms of office shall, without delay, deliver up and transfer to their successors all moneys, books, manuscripts, vouchers and other property of the Association, which may be in their possession, and shall take receipts therefor.

SEC. 5. The Nominating Committee shall be discharged when all the officers of the Association and members of the Council to be elected have been chosen by the Association.

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ARTICLE II.

DUTIES OF OFFICERS.

SEC. 1. The President shall preside at all meetings of the Association and of the Council, shall preserve order at such meetings, shall have the power to adjourn the meetings should they become disorderly, and shall appoint all special committees not otherwise ordered by resolution.

SEC. 2. One of the Vice-Presidents, to be selected by the Vice-Presidents present at the meeting, in the absence of, or at the request of the President, shall temporarily perform the duties of the President. In case of the death, disability, or resignation of the President, one of the Vice-Presidents shall be elected as acting President, by the Council, and shall perform the duties of the President until the next annual election of officers.

SEC. 3. The Recording Secretary shall make and preserve accurate minutes of the meetings of the Association, and shall perform the usual duties pertaining to the office of Secretary, except those specially assigned to the Corresponding and Statistical Secretary.

SEC. 4. The Corresponding and Statistical Secretary shall conduct the official correspondence of the Association, shall preserve all such correspondence, including copies of official letters written by him, and shall act as Secretary of the Council. He shall also notify each Fellow of his appointment to fellowship, and shall furnish him with an official certificate of such appointment in the following form:

CERTIFICATE OF FELLOWSHIP OF THE NEW YORK STATE MEDICAL ASSOCIATION.

This is to certify that ..... is a Fellow, in good standing, of THE NEW YORK STATE MEDICAL ASSOCIATION, having been duly appointed on the ..... day of ....., 18...

.....
President.

.....
Corresponding and Statistical Secretary.

[L. S.]

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INDORSEMENTS.

The person mentioned in this certificate has this day resigned his fellowship, and has thereby relinquished all right and title to any share in the property of the Association.

.....

Corresponding and Statistical Secretary.

Dated on the ..... day of ....., 18....

The person mentioned in this certificate has this day been received again into full fellowship in the Association.

.....

Corresponding and Statistical Secretary.

Dated on the ..... day of ....., 18....

SEC. 5. The Treasurer shall receive all moneys paid to the Association in any way and from any source, and shall dispose of the same as directed by the Council. He shall make a report to the Council of the condition of the finances of the Association, whenever directed so to do by the Council, and shall make a full and complete report of the finances to the Association at each regular meeting.

SEC. 6. The two Secretaries and the Treasurer shall together constitute a Committee of Registration for the regular meetings of the Association, whose duty it shall be to provide, for the registration of Fellows, a proper book, which shall be kept open during the day immediately preceding each meeting and during the days of the said meeting. Any one or two members of this Committee shall be competent to act in the absence of the other members or member. Any Fellow may register for a meeting on payment of his dues and assessments for said meeting, or on presentation of the Treasurer's receipt therefor, or if it shall appear from the books of the Treasurer that his dues and assessments have been paid; provided always that all back dues and assessments have been paid in full. No Fellow whose dues and assessments have not been paid in full shall be entitled to participate in any way in the proceedings of the Association, nor shall he be a candidate for any office in the Association or for membership in the Council. The ayes and nays, when demanded on any question, shall always be called from the official register of the meeting. Each Fellow

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registering shall do so personally and with his own hand; and, in so doing, he pledges himself in honor to adhere to and support the Constitution and By-Laws of the Association, including its code of ethics.

SEC. 7. For all legal purposes, the President and the four Vice-Presidents shall constitute and shall be regarded as the Board of Trustees of the Association.

ARTICLE III.

DUTIES OF THE COUNCIL.

SEC. 1. The Council shall hold an annual meeting at some convenient time and place, to be determined by the President and Secretaries, not more than thirty days before each regular meeting of the Association, and shall also hold such meetings during the regular meetings of the Association as may be necessary for the transaction of its business. The Council shall also hold, during the year, such other meetings as may be necessary. The President shall call a special meeting of the Council when requested in writing so to do by five members thereof, the request specifying the object of such meeting.

SEC. 2. Seven members of the Council shall constitute a quorum.

SEC. 3. In case at any time, except during the meetings of the Association, it shall be impracticable to hold a meeting of the Council, questions may be determined by written votes of the members of the Council; provided always that the question or questions to be determined shall have been presented in writing and in identical language to each and every member of the Council.

SEC. 4. Before the adjournment of each regular meeting of the Association, the Council-elect shall fix the time and place of the next meeting of the Association, and shall appoint, subject to the approval of the Association, a committee of five Fellows, to be known as the Committee of Arrangements, whose duty it shall be to make suitable arrangements for such meeting.

SEC. 5. The President and Secretaries shall be *ex-officio* members of the Committee of Arrangements.

SEC. 6. The President, assisted by the Council, shall provide for papers to be read and discussions to be held at the meetings of the Association.

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SEC. 7. The Council shall report to the Association, at each regular meeting, the names of all Fellows admitted during the year immediately preceding such meeting, and the names of all Fellows who have resigned or have been dropped from the list of Fellows.

SEC. 8. The Council shall authorize and direct all deposits and investments of the funds of the Association, shall order all expenditures to be made by the Treasurer, and shall audit the accounts of the Treasurer so as to report upon the same at each annual meeting of the Association. The funds of the Association shall not be invested except in bonds of the United States or of the State of New York, or on first mortgages on improved real estate in the State of New York, such mortgage or mortgages not to exceed one half of the adjudged value of such real estate.

SEC. 9. The Council shall take cognizance of any and all apparently flagrant violations, by a Fellow or Fellows, of the code of ethics of the Association and shall act upon all charges brought by a Fellow or Fellows against another Fellow or other Fellows, as provided for in the section relating to "Ethics and Discipline."

SEC. 10. The Council shall fill all vacancies in the offices of the Association, and the officers so appointed shall serve until the next succeeding annual election; and the Council shall, in the same manner, fill all vacancies that may occur in the number of its members who have been elected by the Association.

SEC. 11. The Council shall embody in their annual report a statement of the investments and of the condition of the funds of the Association.

SEC. 12. The Council shall take charge of all the real and personal property now or at any future time in the possession of the Association.

SEC. 13. At each regular meeting of the Association, the Secretary of the Council shall read, as part of the annual report of the Council, its minutes for the year.

SEC. 14. The Council shall manage the affairs of the Association, except as otherwise provided in the Constitution and By-Laws, and shall appoint from its own number or from the list of Fellows such committees as may, in the judgment of the Council, be necessary for the transaction of its business.

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ARTICLE IV.

APPOINTMENT, RESIGNATION AND REINSTATEMENT OF FELLOWS.

SEC. 1. All applications for fellowship shall be made in accordance with Sections 3 and 4 of Article II of the Constitution.

SEC. 2. A Fellow removing from the State or desiring to resign his fellowship shall send to the Corresponding and Statistical Secretary his resignation in writing, by which act he severs his connection with the Association. If the dues and assessments of the Fellow resigning be paid in full to the date of his resignation, the Corresponding and Statistical Secretary shall, at the request of such Fellow, indorse upon his certificate of fellowship the fact and date of the resignation and shall return the certificate so indorsed to the Fellow, who shall then be considered as having formally resigned from the Association and as having relinquished all right and title to any share in the property of the Association.

SEC. 3. No Fellow shall be permitted to resign while his dues and assessments, or any part thereof, remain unpaid or while he is under charges which may lead to his expulsion, unless he be allowed to resign by special resolution of the Association.

SEC. 4. Each and every resignation shall be reported by the Council at the next succeeding regular meeting of the Association.

SEC. 5. An application for reinstatement to fellowship in the Association shall be submitted to and considered by the Council in the same manner as an original application for fellowship; except that, on the presentation of a duly authenticated certificate of former fellowship, together with satisfactory evidence of good professional standing during the time following the resignation of former fellowship, payment of the initiation-fee shall not be required when the former Fellow is reinstated. In case of the reinstatement of a former Fellow, the Corresponding and Statistical Secretary shall indorse upon the certificate of former fellowship the fact and date of such reinstatement.

SEC. 6. No former Fellow who has been expelled or who has been dropped from the list of Fellows for non-payment of dues or assessments can be reinstated according to the provisions of Section 5 of this Article; but such former Fellow may be ap-

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pointed according to the provisions of the Constitution, on payment of his initiation-fee, if his back dues and assessments be paid in full up to the date when his previous fellowship had ceased.

ARTICLE V.

ETHICS AND DISCIPLINE.

SEC. 1. The Code of Ethics of the American Medical Association shall be the Code of Ethics of this Association, and shall form an integral part of these By-Laws.

SEC. 2. The only kind and degree of discipline of Fellows, except the dropping of names from the list of Fellows for non-payment of dues and assessments, shall be, expulsion from the Association.

SEC. 3. All charges against a Fellow or Fellows shall be received by the Council and transmitted forthwith to the County or District Association or Society in affiliation with this Association in which the accused Fellow or Fellows may hold membership, asking for a report by such Association or Society upon such charges. In case the Council shall be officially notified, by any County or District Association or Society in affiliation with this Association, of the expulsion, from such Association or Society, of a member or members who are also Fellows of this Association, such member or members shall be expelled from this Association.

SEC. 4. The Council shall hear all complaints against a Fellow or Fellows, of violation of its Code of Ethics, in case such Fellow or Fellows do not hold membership in any Association or Society in affiliation with this Association, or in case a charge or charges have been referred to the Council by an Association or Society in affiliation with this Association. In such cases, the Council shall notify to appear before them any and every Fellow against whom a charge or charges have been preferred. With the said notification to appear before them, they shall furnish to the accused Fellow a copy of the charge or charges made against him. They shall also notify the accusing Fellow or Fellows to be present with the Fellow against whom the charge or charges have been made, when the said charge or charges shall be carefully investigated. The Council shall decide upon the said charge or charges at as early a day as practicable, and shall report their decision to

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the Association at the regular morning session next succeeding the day on which their decision shall have been made. In case the accused or accusing Fellows, or both, be not present at the time appointed for the investigation, the Council may, at their pleasure, either adjourn the investigation once, and once only, for a period not longer than one month, or they may decide upon the charge or charges at the time first appointed for the investigation, and report their decision to the Association, provided always that the accused Fellow shall be entitled to one such adjournment, upon his personal or written application for the same to the Council.

5. The Council shall investigate all apparently flagrant violations of medical ethics by a Fellow, such as improper publications, that come to their knowledge or are brought to their notice in any way. They shall investigate such apparent violations in the same manner as provided for in Section 4 of this Article, except that it shall not be necessary that any formal charge or charges be made by a Fellow.

SEC. 6. A charge against a Fellow shall be made in writing, signed by the Fellow or Fellows making the charge, inclosed in a sealed envelope, indorsed, "Charges against a Fellow," and shall be sent to the Corresponding and Statistical Secretary, to be by him presented to the Council at its next meeting.

SEC. 7. A Fellow can be expelled only at a regular meeting of the Association, upon the recommendation of such action by the Council, and then by an affirmative vote of a majority of the Fellows present and voting.

ARTICLE VI.

INITIATION-FEE, DUES, AND ASSESSMENTS.

SEC. 1. The initiation-fee shall be five dollars, and the annual dues for each current year, payable at or before each regular meeting, shall be three dollars.

SEC. 2. The Council may, at its discretion, make an assessment or assessments upon Fellows, such assessment or assessments not to exceed two dollars for each Fellow for any one current year.

SEC. 3. The Treasurer shall send by mail to the usual address of each Fellow, within one month of each regular meeting of the Association, a notification that his current dues and assessments

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are payable at or before the time of such meeting, and shall inclose, with such notification, a bill for such dues and assessments and for all arrears of dues and assessments.

SEC. 4. The names of all Fellows who shall have failed to pay their dues and assessments for three consecutive years shall be dropped from the list of Fellows; and, within one month of the time when the dues and assessments for the third year shall become payable, the Treasurer shall notify Fellows in arrears for two consecutive years that the provisions of this Section will be enforced against them unless payment of such arrears be made before the adjournment of the next regular meeting of the Association.

ARTICLE VII.

PUBLICATIONS.

SEC. 1. Each and every Fellow shall be entitled to receive one printed copy of the Constitution and By-Laws of the Association, and at least one such copy shall be sent to the American Medical Association, and to each and every Association or Society in affiliation with this Association.

SEC. 2. The Council, or a sub-committee thereof appointed by the Council, to be known as the Committee on Publications, shall have full charge of all publications by the Association, with power to determine what scientific papers, communications, and discussions shall appear in the printed Transactions of the Association.

SEC. 3. No paper that has appeared in any other publication, prior to being read at a meeting of the Association, shall be printed as a part of the Transactions of the Association.

SEC. 4. All papers and communications presented or read at a regular meeting of the Association shall be the property of the Association and shall not be published except by permission of the Council or of the Committee on Publications.

ARTICLE VIII.

DELEGATES TO OTHER MEDICAL ASSOCIATIONS AND SOCIETIES.

SEC. 1. All delegates to other Medical Associations or Societies shall be appointed at the proper time and for the proper period by the Council, and the Council shall fill all vacancies in the number of such delegates.

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SEC. 2. Delegates to other medical associations or societies shall be required to carry out, in their representative capacity, the views and wishes of this Association; and such delegates shall act in strict accordance with the instructions of the Association. Any action taken by a delegate or delegates, in willful opposition to the instructions of the Association, shall render such delegate or delegates liable to expulsion from fellowship in the Association, under the provisions of the article relating to "Ethics and Discipline."

SEC. 3. The Association may or may not, at its pleasure, instruct its delegates; but all instructions to delegates shall be in the form of a resolution or resolutions passed at an annual or special meeting.

ARTICLE IX.

DELEGATES FROM OTHER ASSOCIATIONS AND SOCIETIES AND INVITED GUESTS.

SEC. 1. At any regular meeting of the Association, duly qualified delegates from other State associations and societies and from foreign societies may be received, subject to the approval of the Council, and such delegates may read papers and participate in the scientific proceedings of the Association, when invited so to do by the President, with the consent of the Association. The same privileges may be accorded in the same way to members of the medical profession who are not residents of the State of New York.

ARTICLE X.

MEETINGS.

SEC. 1. A regular meeting of the Association shall take place each year and shall continue for at least three days.

SEC. 2. On each day of meeting, the Association shall hold two sessions; a morning session, to be devoted to the business of the Association, and an afternoon session, to be devoted to scientific papers, communications, and discussions.

SEC. 3. The order of business for the morning session of the first day of each regular meeting of the Association shall be as follows:

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I. Calling the meeting to order by the President, or, in his absence, by one of the Vice-Presidents, at 10 A. M.
II. Reading the register of the meeting by the Recording Secretary.
III. Report of the Committee of Arrangements.
IV. President's Address.
V. Annual report of the Council.
VI. Annual report of the Treasurer.
VII. Reports of special committees, to be read in the order of appointment of such committees.
VIII. Unfinished business.
IX. New business.
X. Announcement by the presiding officer to the Fellows from the different districts that the Fellows representing such districts shall appoint two members of the Nominating Committee.
XI. Appointment by the President of a member at large of the Nominating Committee.
XII. Reading and adoption of the minutes of the session.
XIII. Adjournment of the session.

SEC. 4. The order of business for the morning session of the second day and of all subsequent days, except the last day, shall be as follows :

I. Calling of the meeting to order at 10 A. M.
II. Reading, from the register, of such names as have been added since the last reading of the register.
III. Communications from the Council.
IV. Reports of special committees, to be read in the order of appointment of such committees.
V. Unfinished business.
VI. New business.
VII. Reading and adoption of the minutes of the session.
VIII. Adjournment of the session.

SEC. 5. The order of business for the morning session of the last day of the meeting shall be as follows :

I. Calling the meeting to order at 10 A. M.
II. Reading, from the register, of such names as have been added since the last reading of the register.
III. Communications from the Council.

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IV. Report of the Nominating Committee and action upon such report by the Association.

V. Reports of special committees, to be read in the order of appointment of such committees.

VI. Unfinished business.

VII. New business.

VIII. Reading and adoption of the minutes of the session.

IX. Adjournment of the session.

SEC. 6. The morning sessions of the Association shall adjourn as nearly as possible at the hour of noon.

SEC. 7. The afternoon sessions of the Association shall begin at 2 P. M., and shall be devoted to the reading of papers either entire, by abstract, or by title only, as may be determined by the Council, to the discussion of such papers, and to voluntary communications, when permission to make such voluntary communications has been given by the President, with the consent of the Association.

SEC. 8. The reading of a paper shall not occupy more than thirty minutes, except by permission of the Association.

SEC. 9. No person shall speak more than once, and then not longer than ten minutes, in the discussion of any paper, except by permission of the Association.

SEC. 10. The author of a paper read before the Association shall have the right to close the discussion of such paper.

SEC. 11. No voluntary communication shall exceed fifteen minutes in length, except by permission of the Association; and voluntary communications may be discussed in accordance with the rules regulating the discussion of papers.

SEC. 12. The President shall call a special meeting of the Association when requested in writing so to do by fifteen members of the Council.

ARTICLE XI.

RULES OF ORDER.

RULE 1. Fifteen Fellows shall constitute a quorum for the transaction of business in morning session, and the presiding officer shall declare any meeting in morning session adjourned when it appears that a quorum is no longer present; but a meeting may

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be called to order in afternoon session when a quorum is not present.

RULE 2. In the absence of the President and Vice-Presidents, the meeting may elect any Fellow present to act as President *pro tempore.*

RULE 3. When a motion is under debate, no motion shall be received except motions to adjourn, to lay on the table, for the previous question, to postpone, to refer, or to amend, which several motions shall have precedence in the order in which they are enumerated in this rule.

RULE 4. A motion for the previous question shall not be entertained unless the same be seconded, and supported by at least four additional Fellows present.

RULE 5. Motions to adjourn, to lay on the table, and for the previous question, shall be decided without debate.

RULE 6. During the afternoon sessions, a motion to adjourn shall be in order at any time, except while a member has the floor, and such motion shall be decided without debate.

RULE 7. Every Fellow present at a meeting shall vote on all questions in morning sessions, unless excused from voting by the President, with the consent of the Association.

RULE 8. The ayes and nays on any question, when called for by five Fellows present, shall be decided without debate, and shall be recorded in full in the minutes.

RULE 9. After a question has been decided in morning session, except one of indefinite postponement, any two Fellows who voted with the majority may, at the same or at any subsequent morning session of the same meeting, move for a reconsideration thereof, without which no discussion of such question shall be allowed.

RULE 10. Every Fellow shall have the right to speak once on any question under consideration, but not oftener, unless by permission of the Association.

RULE 11. All questions of order not provided for in these rules shall be determined in accordance with the rules of order embodied in Cushing's "Manual of Parliamentary Practice."

ARTICLE XII.

SEC. 1. These By-Laws shall go into effect at the annual meeting of the Association in November, 1884.

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ARTICLE XIII.

AMENDMENTS.

SEC. 1. Amendments, alterations, or additions to these By-Laws may be made by a three-fourths vote of the Fellows present and voting at a regular annual meeting; provided that notice of such amendments, alterations, or additions shall have been presented in writing at the regular annual meeting immediately preceding.

SEC. 2. These By-Laws, or any Article, or any Section of any Article thereof, may be temporarily suspended at any morning or afternoon session of any regular meeting, during such session only, and then only by a three-fourths vote of the Fellows present and voting.

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CODE OF MEDICAL ETHICS.[1]

OF THE DUTIES OF PHYSICIANS TO THEIR PATIENTS, AND OF THE OBLIGATIONS OF PATIENTS TO THEIR PHYSICIANS.

ART. I.—*Duties of physicians to their patients.*

§ 1. A physician should not only be ever ready to obey the calls of the sick, but his mind ought also to be imbued with the greatness of his mission, and the responsibility he habitually incurs in its discharge. These obligations are the more deep and enduring, because there is no tribunal other than his own conscience to adjudge penalties for carelessness or neglect. Physicians should, therefore, minister to the sick with due impressions of the importance of their office; reflecting that the ease, the health, and the lives of those committed to their charge, depend on their skill, attention, and fidelity. They should study, also, in their deportment, so to unite *tenderness* with *firmness*, and *condescension* with *authority*, as to inspire the minds of their patients with gratitude, respect, and confidence.

§ 2. Every case committed to the charge of a physician should be treated with attention, steadiness, and humanity. Reasonable indulgence should be granted to the mental imbecility and caprices of the sick. Secrecy and delicacy, when required by peculiar circumstances, should be strictly observed; and the familiar and confidential intercourse to which physicians are admitted in their professional visits, should be used with discretion, and with the most scrupulous regard to fidelity and honor. The obligation of secrecy extends beyond the period of professional

[1] Taken from the "Transactions of the American Medical Association."

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services ;—none of the privacies of personal and domestic life, no infirmity of disposition or flaw of character observed during professional attendance should ever be divulged by the physician except when he is imperatively required to do so. The force and necessity of this obligation are indeed so great that professional men have, under certain circumstances, been protected in their observance of secrecy by courts of justice.

§ 3. Frequent visits to the sick are in general requisite, since they enable the physician to arrive at a more perfect knowledge of the disease—to meet promptly every change which may occur, and also tend to preserve the confidence of the patient. But unnecessary visits are to be avoided, as they give useless anxiety to the patient, tend to diminish the authority of the physician, and render him liable to be suspected of interested motives.

§ 4. A physician should not be forward to make gloomy prognostications, because they savor of empiricism, by magnifying the importance of his services in the treatment or cure of the disease. But he should not fail, on proper occasions, to give to the friends of the patient timely notice of danger when it really occurs ; and even to the patient himself, if absolutely necessary. This office, however, is so peculiarly alarming when executed by him, that it ought to be declined whenever it can be assigned to any other person of sufficient judgment and delicacy. For the physician should be the minister of hope and comfort to the sick ; that, by such cordials to the drooping spirit, he may smooth the bed of death, revive expiring life, and counteract the depressing influence of those maladies which often disturb the tranquillity of the most resigned in their last moments. The life of a sick person can be shortened not only by the acts, but also by the words or the manner of a physician. It is, therefore, a sacred duty to guard himself carefully in this respect, and to avoid all things which have a tendency to discourage the patient and to depress his spirits.

§ 5. A physician ought not to abandon a patient because the case is deemed incurable ; for his attendance may continue to be highly useful to the patient, and comforting to the relatives around him, even in the last period of a fatal malady, by alleviating pain and other symptoms, and by soothing mental anguish. To decline attendance, under such circumstances, would be sacri-

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ficing to fanciful delicacy and mistaken liberality, that moral duty which is independent of, and far superior to, all pecuniary consideration.

§ 6. Consultations should be promoted in difficult or protracted cases, as they give rise to confidence, energy, and more enlarged views in practice.

§ 7. The opportunity which a physician not unfrequently enjoys, of promoting and strenghtening the good resolutions of his patients, suffering under the consequences of vicious conduct, ought never to be neglected. His counsels, or even remonstrances, will give satisfaction, not offense, if they be proffered with politeness, and evince a genuine love of virtue, accompanied by a sincere interest in the welfare of the person to whom they are addressed.

ART. II.— *Obligations of patients to their physicians.*

§ 1. The members of the medical profession, upon whom is enjoined the performance of so many important and arduous duties toward the community, and who are required to make so many sacrifices of comfort, ease, and health, for the welfare of those who avail themselves of their services, certainly have a right to expect and require, that their patients should entertain a just sense of the duties which they owe to their medical attendants.

§ 2. The first duty of a patient is to select as his medical adviser one who has received a regular professional education. In no trade or occupation do mankind rely on the skill of an untaught artist; and in medicine, confessedly the most difficult and intricate of the sciences, the world ought not to suppose that knowledge is intuitive.

§ 3. Patients should prefer a physician whose habits of life are regular, and who is not devoted to company, pleasure, or to any pursuit incompatible with his professional obligations. A patient should, also, confide the care of himself and family, as much as possible, to one physician: for a medical man who has become acquainted with the peculiarities of constitution, habits, and predispositions of those he attends, is more likely to be successful in his treatment than one who does not possess that knowledge.

A patient who has thus selected his physician should always apply for advice in what may appear to him trivial cases, for the

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most fatal results often supervene on the slightest accidents. It is of still more importance that he should apply for assistance in the forming stage of violent diseases ; it is to a neglect of this precept that medicine owes much of the uncertainty and imperfection with which it has been reproached.

§ 4. Patients should faithfully and unreservedly communicate to their physician the supposed cause of their disease. This is the more important, as many diseases of a mental origin simulate those depending on external causes, and yet are only to be cured by ministering to the mind diseased. A patient should never be afraid of thus making his physician his friend and adviser ; he should always bear in mind that a medical man is under the strongest obligations of secrecy. Even the female sex should never allow feelings of shame or delicacy to prevent their disclosing the seat, symptoms, and causes of complaints peculiar to them. However commendable a modest reserve may be in the common occurrences of life, its strict observance in medicine is often attended with the most serious consequences, and a patient may sink under a painful and loathsome disease, which might have been readily prevented had timely intimation been given to the physician.

§ 5. A patient should never weary his physician with a tedious detail of events or matters not appertaining to his disease. Even as relates to his actual symptoms, he will convey much more real information by giving clear answers to interrogatories, than by the most minute account of his own framing. Neither should he obtrude upon his physician the details of his business nor the history of his family concerns.

§ 6. The obedience of a patient to the prescriptions of his physician should be prompt and implicit. He should never permit his own crude opinions as to their fitness to influence his attention to them. A failure in one particular may render an otherwise judicious treatment dangerous, and even fatal. This remark is equally applicable to diet, drink, and exercise. As patients become convalescent, they are very apt to suppose that the rules prescribed for them may be disregarded, and the consequence, but too often, is a relapse. Patients should never allow themselves to be persuaded to take any medicine whatever, that may be recommended to them by the self-constituted doctors and doctresses who are so frequently met with, and who pretend to possess infallible remedies

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for the cure of every disease. However simple some of their prescriptions may appear to be, it often happens that they are productive of much mischief, and in all cases they are injurious, by contravening the plan of treatment adopted by the physician.

§ 7. A patient should, if possible, avoid even the *friendly visits of a physician* who is not attending him—and when he does receive them, he should never converse on the subject of his disease, as an observation may be made, without any intention of interference, which may destroy his confidence in the course he is pursuing, and induce him to neglect the directions prescribed to him. A patient should never send for a consulting physician without the express consent of his own medical attendant. It is of great importance that physicians should act in concert; for, although their modes of treatment may be attended with equal success when employed singly, yet conjointly they are very likely to be productive of disastrous results.

§ 8. When a patient wishes to dismiss his physician, justice and common courtesy require that he should declare his reasons for so doing.

§ 9. Patients should always, when practicable, send for their physician in the morning, before his usual hour of going out; for, by being early aware of the visits he has to pay during the day, the physician is able to apportion his time in such a manner as to prevent an interference of engagements. Patients should also avoid calling on their medical adviser unnecessarily during the hours devoted to meals or sleep. They should always be in readiness to receive the visits of their physician, as the detention of a few minutes is often of serious inconvenience to him.

§ 10. A patient should, after his recovery, entertain a just and enduring sense of the value of the services rendered him by his physician; for these are of such a character, that no mere pecuniary acknowledgment can repay or cancel them.

OF THE DUTIES OF PHYSICIANS TO EACH OTHER, AND TO THE PROFESSION AT LARGE.

ART. I.—*Duties for the support of professional character.*

§ 1. Every individual, on entering the profession, as he becomes thereby entitled to all its privileges and immunities, incurs an obligation to exert his best abilities to maintain its dignity and

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honor, to exalt its standing, and to extend the bounds of its usefulness. He should, therefore, observe strictly such laws as are instituted for the government of its members; should avoid all contumelious and sarcastic remarks relative to the faculty as a body; and while, by unwearied diligence, he resorts to every honorable means of enriching the science, he should entertain a due respect for his seniors, who have, by their labors, brought it to the elevated condition in which he finds it.

§ 2. It is not in accord with the interests of the public or the honor of the profession that any physician or medical teacher should examine or sign diplomas or certificates of proficiency for, or otherwise be specially concerned with, the graduation of persons whom they have good reason to believe intend to support and practice any exclusive and irregular system of medicine.

§ 3. There is no profession, from the members of which greater purity of character, and a higher standard of moral excellence are required, than the medical; and to attain such eminence is a duty every physician owes alike to his profession and to his patients. It is due to the latter, as without it he can not command their respect and confidence, and to both, because no scientific attainments can compensate for the want of correct moral principles. It is also incumbent upon the faculty to be temperate in all things, for the practice of physic requires the unremitting exercise of a clear and vigorous understanding; and, on emergencies, for which no professional man should be unprepared, a steady hand, an acute eye, and an unclouded head may be essential to the well-being, and even to the life, of a fellow-creature.

§ 4. It is derogatory to the dignity of the profession to resort to public advertisements, or private cards, or handbills, inviting the attention of individuals affected with particular diseases—publicly offering advice and medicine to the poor gratis, or promising radical cures; or to publish cases and operations in the daily prints, or suffer such publications to be made; to invite laymen to be present at operations, to boast of cures and remedies, to adduce certificates of skill and success, or to perform any other similar acts. These are the ordinary practices of empirics, and are highly reprehensible in a regular physician.

§ 5. Equally derogatory to professional character is it for a physician to hold a patent for any surgical instrument or medi-

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cine; or to dispense a secret *nostrum*, whether it be the composition or exclusive property of himself or of others. For, if such nostrum be of real efficacy, any concealment regarding it is inconsistent with beneficence and professional liberality; and if mystery alone give it value and importance, such craft implies either disgraceful ignorance or fraudulent avarice. It is also reprehensible for physicians to give certificates attesting the efficacy of patent or secret medicines, or in any way to promote the use of them.

ART. II.—*Professional services of physicians to each other.*

§ 1. All practitioners of medicine, their wives, and their children while under the paternal care, are entitled to the gratuitous services of any one or more of the faculty residing near them, whose assistance may be desired. A physician afflicted with disease is usually an incompetent judge of his own case; and the natural anxiety and solicitude which he experiences at the sickness of a wife, a child, or any one who, by the ties of consanguinity, is rendered peculiarly dear to him, tend to obscure his judgment, and produce timidity and irresolution in his practice. Under such circumstances, medical men are peculiarly dependent upon each other, and kind offices and professional aid should always be cheerfully and gratuitously afforded. Visits ought not, however, to be obtruded officiously; as such unasked civility may give rise to embarrassment, or interfere with that choice on which confidence depends. But, if a distant member of the faculty, whose circumstances are affluent, request attendance, and an honorarium be offered, it should not be declined; for no pecuniary obligation ought to be imposed, which the party receiving it would wish not to incur.

ART. III.—*Of the duties of physicians as respects vicarious offices.*

§ 1. The affairs of life, the pursuit of health, and the various accidents and contingencies to which a medical man is peculiarly exposed, sometimes require him temporarily to withdraw from his duties to his patients, and to request some of his professional brethren to officiate for him. Compliance with this request is an act of courtesy, which should always be performed with the utmost consideration for the interest and character of the family physician,

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and, when exercised for a short period, all the pecuniary obligations for such service should be awarded to him. But if a member of the profession neglect his business in quest of pleasure and amusement, he can not be considered as entitled to the advantages of the frequent and long-continued exercise of this fraternal courtesy, without awarding to the physician who officiates, the fees arising from the discharge of his professional duties.

In obstetrical and important surgical cases, which give rise to unusual fatigue, anxiety, and responsibility, it is just that the fees accruing therefrom should be awarded to the physician who officiates.

ART. IV.— *Of the duties of physicians in regard to consultations.*

§ 1. A regular medical education furnishes the only presumptive evidence of professional abilities and acquirements, and ought to be the only acknowledged right of an individual to the exercise and honors of his profession. Nevertheless, as in consultations the good of the patient is the sole object in view, and this is often dependent on personal confidence, no intelligent regular practitioner, who has a license to practice from some medical board of known and acknowledged respectability, recognized by this Association, and who is in good moral and professional standing in the place in which he resides, should be fastidiously excluded from fellowship, or his aid refused in consultation, when it is requested by the patient. But no one can be considered as a regular practitioner or a fit associate in consultation, whose practice is based on an exclusive dogma, to the rejection of the accumulated experience of the profession, and of the aids actually furnished by anatomy, physiology, pathology, and organic chemistry.

§ 2. In consultations, no rivalship or jealousy should be indulged; candor, probity, and all due respect should be exercised toward the physician having charge of the case.

§ 3. In consultations, the attending physician should be the first to propose the necessary questions to the sick; after which the consulting physician should have the opportunity to make such further inquiries of the patient as may be necessary to satisfy him of the true character of the case. Both physicians should then retire to a private place for deliberation; and the one first in attendance should communicate the directions agreed upon to the

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patient or his friends, as well as any opinions which it may be thought proper to express. But no statement or discussion of it should take place before the patient or his friends, except in the presence of all the faculty attending, and by their common consent; and no *opinions* or *prognostications* should be delivered which are not the result of previous deliberation and concurrence.

§ 4. In consultations, the physician in attendance should deliver his opinion first; and when there are several consulting, they should deliver their opinions in the order in which they have been called in. No decision, however, should restrain the attending physician from making such variations in the mode of treatment as any subsequent unexpected change in the character of the case may demand. But such variation, and the reasons for it, ought to be carefully detailed at the next meeting in consultation. The same privilege belongs also to the consulting physician if he is sent for in an emergency, when the regular attendant is out of the way, and similar explanations must be made by him at the next consultation.

§ 5. The utmost punctuality should be observed in the visits of physicians when they are to hold consultation together, and this is generally practicable, for society has been considerate enough to allow the plea of a professional engagement to take precedence of all others, and to be an ample reason for the relinquishment of any present occupation. But as professional engagements may sometimes interfere, and delay one of the parties, the physician who first arrives should wait for his associate a reasonable period, after which the consultation should be considered as postponed to a new appointment. If it be the attending physician who is present, he will, of course, see the patient and prescribe; but if it be the consulting one, he should retire, except in case of emergency, or when he has been called from a considerable distance, in which latter case he may examine the patient, and give his opinion in *writing*, and *under seal*, to be delivered to his associate.

§ 6. In consultations, theoretical discussions should be avoided, as occasioning perplexity and loss of time. For there may be much diversity of opinion concerning speculative points, with perfect agreement in those modes of practice which are founded, not on hypothesis, but on experience and observation.

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§ 7. All discussions in consultation should be held as secret and confidential. Neither by words nor manner should any of the parties to a consultation assert or insinuate that any part of the treatment pursued did not receive his assent. The responsibility must be equally divided between the medical attendants—they must equally share the credit of success as well as the blame of failure.

§ 8. Should an irreconcilable diversity of opinion occur when several physicians are called upon to consult together, the opinion of the majority should be considered as decisive; but if the numbers be equal on each side, then the decision should rest with the attending physician. It may, moreover, sometimes happen that two physicians can not agree in their views of the nature of a case, and the treatment to be pursued. This is a circumstance much to be deplored, and should always be avoided, if possible, by mutual concessions, as far as they can be justified by a conscientious regard for the dictates of judgment. But in the event of its occurrence, a third physician should, if practicable, be called to act as umpire; and, if circumstances prevent the adoption of this course, it must be left to the patient to select the physician in whom he is most willing to confide. But, as every physician relies upon the rectitude of his judgment, he should, when left in the minority, politely and consistently retire from any further deliberation in the consultation, or participation in the management of the case.

§ 9. As circumstances sometimes occur to render a *special consultation* desirable, when the continued attendance of two physicians might be objectionable to the patient, the member of the faculty whose assistance is required in such cases should sedulously guard against all future unsolicited attendance. As such consultations require an extraordinary portion of both time and attention, at least a double honorarium may be reasonably expected.

§ 10. A physician who is called upon to consult, should observe the most honorable and scrupulous regard for the character and standing of the practitioner in attendance; the practice of the latter, if necessary, should be justified as far as it can be, consistently with a conscientious regard for truth, and no hint or insinuation should be thrown out which could impair the confidence reposed in him, or affect his reputation. The consulting physician

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should also carefully refrain from any of those extraordinary attentions or assiduities which are too often practiced by the dishonest for the base purpose of gaining applause, or ingratiating themselves into the favor of families and individuals.

ART. V.—*Duties of physicians in cases of interference.*

§ 1. Medicine is a liberal profession, and those admitted into its ranks should found their expectations of practice upon the extent of their qualifications, not on intrigue or artifice.

§ 2. A physician, in his intercourse with a patient under the care of another practitioner, should observe the strictest caution and reserve. No meddling inquiries should be made—no disingenuous hints given relative to the nature and treatment of his disorder; nor any course of conduct pursued that may directly or indirectly tend to diminish the trust reposed in the physician employed.

§ 3. The same circumspection and reserve should be observed when, from motives of business or friendship, a physician is prompted to visit an individual who is under the direction of another practitioner. Indeed, such visits should be avoided, except under peculiar circumstances; and when they are made, no particular inquiries should be instituted relative to the nature of the disease or the remedies employed, but the topics of conversation should be as foreign to the case as circumstances will admit.

§ 4. A physician ought not to take charge of or prescribe for a patient who has recently been under the care of another member of the faculty in the same illness, except in cases of sudden emergency, or in consultation with the physician previously in attendance, or when the latter has relinquished the case, or been regularly notified that his services are no longer desired. Under such circumstances, no unjust and illiberal insinuations should be thrown out in relation to the conduct or practice previously pursued, which should be justified as far as candor and regard for truth and probity will permit; for it often happens that patients become dissatisfied when they do not experience immediate relief, and, as many diseases are naturally protracted, the want of success in the first stage of treatment, affords no evidence of a lack of professional knowledge and skill.

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§ 5. When a physician is called to an urgent case, because the family attendant is not at hand, he ought, unless his assistance in consultation be desired, to resign the care of the patient to the latter immediately on his arrival.

§ 6. It often happens in cases of sudden illness, or of recent accidents and injuries, owing to the alarm and anxiety of friends, that a number of physicians are simultaneously sent for. Under these circumstances, courtesy should assign the patient to the first who arrives, who should select from those present any additional assistance that he may deem necessary. In all such cases, however, the practitioner who officiates should request the family physician, if there be one, to be called, and, unless his further attendance be requested, should resign the case to the latter on his arrival.

§ 7. When a physician is called to the patient of another practitioner, in consequence of the sickness or absence of the latter, he ought, on the return or recovery of the regular attendant and with the consent of the patient, to surrender the case.

[The expression, "patient of another practitioner," is understood to mean a patient who may have been under the charge of another practitioner at the time of the attack of sickness, or departure from home of the latter, or who may have called for his attendance during absence or sickness, or in any other manner given it to be understood that he regarded the said physician as his regular medical attendant.]

§ 8. A physician, when visiting a sick person in the country, may be desired to see a neighboring patient who is under the regular direction of another physician, in consequence of some sudden change or aggravation of symptoms. The conduct to be pursued on such an occasion is to give advice adapted to present circumstances; to interfere no further than is absolutely necessary with the general plan of treatment; to assume no future direction unless it be expressly desired; and, in this last case, to request an immediate consultation with the practitioner previously employed.

§ 9. A wealthy physician should not give advice *gratis* to the affluent; because his doing so is an injury to his professional brethren. The office of a physician can never be supported as an exclusively beneficent one; and it is defrauding, in some degree, the

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common funds for its support, when fees are dispensed with which might justly be claimed.

§ 10. When a physician who has been engaged to attend a case of midwifery is absent, and another is sent for, if delivery is accomplished during the attendance of the latter, he is entitled to the fee, but should resign his patient to the practitioner first engaged.

ART. VI.—*Of differences between physicians.*

§ 1. Diversity of opinion and opposition of interest may, in the medical as in other professions, sometimes occasion controversy and even contention. Whenever such cases unfortunately occur, and can not be immediately terminated, they should be referred to the arbitration of a sufficient number of physicians or a *court-medical.*

§ 2. As peculiar reserve must be maintained by physicians toward the public in regard to professional matters, and as there exist numerous points in medical ethics and etiquette through which the feelings of medical men may be painfully assailed in their intercourse with each other, and which can not be understood or appreciated by general society, neither the subject-matter of such differences nor the adjudication of the arbitrators should be made public, as publicity in a case of this nature may be personally injurious to the individuals concerned, and can hardly fail to bring discredit on the faculty.

ART. VII.—*Of pecuniary acknowledgments.*

Some general rules should be adopted by the faculty, in every town or district, relative to *pecuniary acknowledgments* from their patients; and it should be deemed a point of honor to adhere to these rules with as much uniformity as varying circumstances will admit.

OF THE DUTIES OF THE PROFESSION TO THE PUBLIC, AND OF THE OBLIGATIONS OF THE PUBLIC TO THE PROFESSION.

ART. I.—*Duties of the profession to the public.*

§ 1. As good citizens, it is the duty of physicians to be ever vigilant for the welfare of the community, and to bear their part

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in sustaining its institutions and burdens; they should also be ever ready to give counsel to the public in relation to matters especially appertaining to their profession, as on subjects of medical police, public hygiene, and legal medicine. It is their province to enlighten the public in regard to quarantine regulations; the location, arrangement, and dietaries of hospitals, asylums, schools, prisons, and similar institutions; in relation to the medical police of towns, as drainage, ventilation, etc.; and in regard to measures for the prevention of epidemic and contagious diseases; and when pestilence prevails, it is their duty to face the danger, and to continue their labors for the alleviation of the suffering, even at the jeopardy of their own lives.

§ 2. Medical men should also be always ready, when called on by the legally constituted authorities, to enlighten coroners' inquests and courts of justice on subjects strictly medical—such as involve questions relating to sanity, legitimacy, murder by poisons or other violent means, and in regard to the various other subjects embraced in the science of Medical Jurisprudence. But in these cases, and especially where they are required to make a *post-mortem* examination, it is just, in consequence of the time, labor, and skill required, and the responsibility and risk they incur, that the public should award them a proper honorarium.

§ 3. There is no profession by the members of which eleemosynary services are more liberally dispensed than the medical, but justice requires that some limits should be placed to the performance of such good offices. Poverty, professional brotherhood, and certain of the public duties referred to in the first section of this article, should always be recognized as presenting valid claims for gratuitous services; but neither institutions endowed by the public or by rich individuals, societies for mutual benefit, for the insurance of lives or for analogous purposes, nor any profession or occupation, can be admitted to possess such privilege. Nor can it be justly expected of physicians to furnish certificates of inability to serve on juries, to perform militia duty, or to testify to the state of health of persons wishing to insure their lives, obtain pensions, or the like, without a pecuniary acknowledgment. But to individuals in indigent circumstances, such professional services should always be cheerfully and freely accorded.

§ 4. It is the duty of physicians, who are frequent witnesses

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of the enormities committed by quackery, and the injury to health and even destruction of life caused by the use of quack medicines, to enlighten the public on these subjects, to expose the injuries sustained by the unwary from the devices and pretensions of artful empirics and impostors. Physicians ought to use all the influence which they may possess, as professors in Colleges of Pharmacy, and by exercising their option in regard to the shops to which their prescriptions shall be sent, to discourage druggists and apothecaries from vending quack or secret medicines, or from being in any way engaged in their manufacture and sale.

ART. II.—*Obligations of the public to physicians.*

§ 1. The benefits accruing to the public, directly and indirectly, from the active and unwearied beneficence of the profession, are so numerous and important, that physicians are justly entitled to the utmost consideration and respect from the community. The public ought likewise to entertain a just appreciation of medical qualifications; to make a proper discrimination between true science and the assumptions of ignorance and empiricism; to afford every encouragement and facility for the acquisition of medical education—and no longer to allow the statute-books to exhibit the anomaly of exacting knowledge from physicians, under a liability to heavy penalties, and of making them obnoxious to punishment for resorting to the only means of obtaining it.

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PROCEEDINGS.

FIRST ANNUAL MEETING
OF THE
NEW YORK STATE MEDICAL ASSOCIATION.

HELD AT THE MURRAY HILL HOTEL, IN NEW YORK CITY,

November 18, 19 and 20, 1884.

FIRST DAY, THURSDAY, NOVEMBER 18, 1884.—MORNING SESSION.

THE Association was called to order at 9.45 A. M., by Dr. J. W. S. Gouley, of New York County, Chairman of the Committee of Arrangements. The Corresponding Secretary, Dr. E. D. Ferguson, of Rensselaer County, acting as Recording Secretary, in the absence of Dr. Caleb Green, of Cortland County, announced the number of Fellows registered up to the time of the meeting.

Dr. Gouley then welcomed the Association to New York City, and read the report of the Committee of Arrangements. (See page 15.)

The President, Dr. H. D. Didama, of Onondaga County, then took the chair and delivered his annual address. (See page 19.)

At the close of his address, the President announced the Committee on Scientific Contributions, as follows: Dr. E. S. F. Arnold, of New York County; Dr. Simeon T. Clark, of Niagara County; Dr. William Gillis, of Franklin County; Dr. George W. Avery, of Chenango County; Dr. J. C. Hannon, of Rensselaer County.

The Secretary then read, as the report of the Council, the min-

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utes of its Proceedings. (See proceedings of the Council, pages 541 and 610.)

On motion of Dr. E. S. F. Arnold, of New York County, the report of the Council was received and adopted.

Delegates from the State Medical Societies of Vermont, Connecticut, and Pennsylvania, were introduced to the Association by the President. Drs. Wile, of Connecticut, Shoemaker, of Pennsylvania, and Clark, of Vermont, responded to the introduction, congratulating the Association upon the auspicious opening of its first annual session.

The Treasurer, Dr. J. H. Hinton, of New York County, then made the following report:

NEW YORK, *November 17, 1884.*

The Treasurer of the New York State Medical Association begs leave to make the following report for the period from February 6, 1884, to date:

Receipts.

292 initiation-fees	$1,460.00
42 annual dues	126.00
Donation by Dr. Didama	100.00
Total	$1,686.00.

Disbursements.

For printing, seal, certificates, etc.	$1,002.49
Balance	$683.51.

Signed. JOHN H. HINTON,
Treasurer.

On motion, Dr. S. S. Purple, of New York County, Dr. C. C. Wyckoff, of Erie County, and Dr. J. G. Orton, of Broome County, were appointed a committee to audit the accounts of the Treasurer.

Dr. E. M. Moore then delivered the address on Surgery. (See page 33.)

Dr. J. W. S. Gouley read the following report of the special committee, appointed by the Council, on the organization of Branch Associations:

MR. PRESIDENT: In accordance with the instructions received from the Council, your committee has the honor to report that the

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question of organizing District Medical Associations as branches of our State Association has been carefully studied; that the opinions of a number of Fellows residing in the several Districts have been solicited and obtained; that these gentlemen are all in favor of the immediate formation of one Branch Association in each of the five Districts; and that a plan of organization has been prepared. Your committee, therefore, has to present the following plan, for the consideration of the Association:

PLAN OF ORGANIZATION OF FIVE BRANCHES OF THE NEW YORK STATE MEDICAL ASSOCIATION.

SECTION 1.—*Organization.*

THERE shall be organized, on the third Thursday in the month of November, 1884, five District Medical Associations, as branches of the New York State Medical Association, whose objects shall be the same as those of the parent Association.

SECTION 2.—*Designation.*

The Branch Associations shall be designated, respectively, as the FIRST, OR NORTHERN BRANCH; the SECOND, OR EASTERN BRANCH; the THIRD, OR CENTRAL BRANCH; the FOURTH, OR WESTERN BRANCH; and the FIFTH, OR SOUTHERN BRANCH of the NEW YORK STATE MEDICAL ASSOCIATION.

SECTION 3.—*Counties in each Branch.*

The Counties included in each Branch of the New York State Medical Association shall be the following:

First, or Northern Branch.

Clinton, 30;[1] Essex, 22; Franklin, 16; Hamilton, —; Herkimer, 29; Jefferson, 30; Lewis, 14; Oneida, 58; Oswego, 22; St. Lawrence, 13; Warren, 18. Total..... 252

[1] The figures following each County show the number of those in the County, upon whose applications for Fellowship the Council is now authorized to act.

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Second, or Eastern Branch.

Albany, 39; Columbia, 15; Fulton, 9; Greene, 24; Montgomery, 16; Rensselaer, 74; Saratoga, 40; Schenectady, 10; Schoharie, 16; Washington, 12. Total..... 255

Third, or Central Branch.

Broome, 31; Cayuga, 25; Chemung, 30; Chenango, 40; Cortland, 23; Delaware, 20; Madison, 21; Onondaga, 65; Otsego, 22; Schuyler, 16; Seneca, 22; Tioga, 19; Tompkins, 15. Total..... 349

Fourth or Western Branch.

Allegany, 15; Cattaraugus, 14; Chautauqua, 29; Erie, 120; Genesee, 16; Livingston, 15; Monroe, 49; Niagara, 28; Ontario, 30; Orleans, 18; Steuben, 18; Wayne, 27; Wyoming, 14; Yates, 11. Total..... 404

Fifth, or Southern Branch.

Dutchess, 46; Kings, 249; New York, 783; Orange, 20; Putnam, 9; Queens, 41; Richmond, 13; Rockland, 14; Suffolk, 22; Sullivan, 20; Ulster, 23; Westchester, 47. Total..... 1,287

Grand Total..... 2,547

SECTION 4.—*Composition.*

Each Branch Association shall be composed of those Fellows of the parent Association who reside in the District, and of delegates from the four other Branch Associations or from County Associations in affiliation with the New York State Medical Association, in the proportion of one delegate for every five Fellows or Members, and also of invited Fellows from any of the Districts. These last named (invited Fellows) may take part in the scientific proceedings, but they shall not be entitled to vote or to hold office.

SECTION 5.—*Officers.*

The officers of each Branch Association shall be a President, a Secretary, and an Executive Committee consisting of one Fellow from each County in the District. The President shall be the

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Chairman, and the Secretary shall be the Secretary of the Executive Committee. This Committee shall fill such vacancies as may occur in its body during the year.

SECTION 6.—*Presiding Officers.*

The Vice-Presidents of the parent Association shall be the Presidents of the Branch Associations of the Districts in which they respectively reside. The President of the parent Association shall be the President of the Branch Association of the District in which he resides.

SECTION 7.—*Executive Committees.*

The Executive Committee of each Branch Association shall manage the affairs of the said Association. Five members of the Committee shall constitute a quorum.

SECTION 8.—*Formation of the Executive Committee.*

The members of the first Executive Committee of each Branch Association shall be appointed in the following manner: When the representatives of each District shall meet (on the first Tuesday in November, 1884) to appoint the Nominating Committee, they shall also appoint one Fellow from each County in his District to be a member of the Executive Committee of his Branch Association.

SECTION 9.—*Nominating Committee.*

In future, at the annual meeting of each Branch Association, the Executive Committee shall be appointed as follows: There shall be constituted, on the first morning session of each Branch Association, a Nominating Committee, consisting of one Fellow present from each County represented in the District; and it shall be the duty of this Committee to report forthwith to the Branch Association for action, the name of one Fellow from each County in the District to act as a member of the Executive Committee.

SECTION 10.—*Appointment of the Secretary.*

The Secretary of each Branch Association shall be appointed by the Executive Committee as soon as this Committee is formed, either from its own body or from the general membership of the Branch Association.

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SECTION 11.—*Duties of the Officers.*

The duties of the officers of each Branch Association shall be the same as those prescribed in the By-Laws of the parent Association. In addition, the President of each Branch Association shall make annually a report of its scientific work to the parent Association and shall read by title the papers contributed to the Branch Association during the year.

SECTION 12.—*Places of Annual Meetings.*

Each Branch Association shall hold annually one stated meeting at the headquarters of the Branch Association, which shall be in a city to be designated by the Executive Committee, and shall also hold such special meetings as may be deemed expedient by the Executive Committee.

SECTION 13.—*Places of Special Meetings.*

The special meetings shall be held in turn in the several Counties of the District; the time and place of each special meeting to be designated by the Executive Committee. As soon as the time and place of such meetings are determined, the Secretary of the Branch Association shall notify the Corresponding Secretary of the parent Association.

SECTION 14.—*Time of Annual Meeting.*

The First, or Northern Branch of the New York State Medical Association shall meet on the second Tuesday in July; the Second, or Eastern Branch, on the fourth Tuesday in June; the Third, or Central Branch, on the second Tuesday in June; the Fourth, or Western Branch, on the second Tuesday in May; and the Fifth, or Southern Branch, on the second Tuesday in October. At each meeting, there shall be a morning and afternoon session, and the meeting shall continue until all its business is transacted.

SECTION 15.—*Assessments.*

There shall be no initiation fees or dues; but a small assessment shall be required of each Fellow present, sufficient to defray the necessary expenses of the meeting. The amount of this assessment shall be determined by the Executive Committee.

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SECTION 16.—*Registration Committee.*

The Secretary and two members of the Executive Committee shall be a Registration Committee, and shall not register any Fellow who has failed to comply with Section 1, Article VI, of the By-Laws of the parent Association.[1] The Secretary is, however, authorized to receive arrears due to the parent Association, and, when they are paid, he shall give a receipt for the same and register the Fellow. It shall then be the duty of the Secretary to forward the amount of such arrears to the Treasurer of the parent Association, together with the name and address of each Fellow so paying his indebtedness.

SECTION 17.—*Candidates for appointment as Fellows of the parent Association.*

The Executive Committee of each Branch Association may recommend to the President, candidates for appointment as Fellows of the parent Association, under the provisions of Sections 3 and 4 of Article II of the Constitution of the parent Association. In case of approval by the President, this officer shall write upon the application of the candidate the word approved, affix thereto his signature, and forward the indorsed application, together with the initiation-fee, to the Corresponding Secretary of the parent Association. Such candidates for Fellowship, when approved by the President, may take part in the scientific proceedings of the Branch Association, but they shall not be entitled to vote or to hold office until they have been regularly appointed by the Council of the parent Association.

SECTION 18.—*Meetings of the Executive Committees.*

The Executive Committee of each Branch Association shall meet at the call of its President and Secretary.

SECTION 19.—*Delegates.*

The Executive Committee may appoint, at any annual or special meeting, delegates to the other Branch Associations of

[1] "The initiation-fee shall be five dollars, and the annual dues for each current year, payable at or before each regular meeting, shall be three dollars." Section 1, Article VI, By-Laws of the N. Y. S. M. A.

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the New York State Medical Association, to the American Medical Association, and to the Medical Associations or Societies of other States.

SECTION 20.—*By-Laws.*

This plan of organization shall go into effect at once and shall stand as the Constitution of each and every Branch Association; but each Branch Association shall make its own By-Laws, to be modeled, however, upon those of the parent Association.

SECTION 21.—*Amendments.*

No part of this plan of organization shall be abolished, altered, or amended, and no addition shall be made thereto, except at a regular meeting of the parent Association, after due notice of such alterations, additions, amendments, or abolition, shall have been given in writing by a Fellow, at the regular meeting of the parent Association immediately preceding, and then only by a majority vote of three fourths of the Fellows present and voting.

J. W. S. GOULEY, Chairman;
A. FLINT, JR.,
JOHN H. HINTON,
E. D. FERGUSON,
Committee.

DR. E. D. FERGUSON, of Rensselaer County, said that this matter of subordinate Associations was of great importance, and that this had been specially impressed upon him by the inquiries he had received during the past few months as to the relations of the existing County Societies to the State Association, and as to what action, if any, would be necessary to bring local organizations throughout the State in affiliation with this Association. The questions thus propounded required an answer; and, although he could not commit the Association to any special line of action in the matter, from a careful consideration of the subject, he had concluded that there could be no direct and supervisory relation between this Association and the County Societies, as the latter are at present constituted; but that, so long as a County Society held to the Code of Ethics of the American Medical Association, it could be con-

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sidered as in affiliation with the State Association and entitled to representation through its president acting as a delegate. His advice had frequently been asked as to the desirable course to pursue; whether to maintain or to disband the County Societies; and here, again, a careful view of the question had induced him to advise that the County Societies be maintained, for the present at least; that, while all discussions of vexed questions in an irritating way should be avoided, still, where a county organization could be held in the interest of the honor and usefulness of the profession, on the principles promulgated by this Association, its existence would doubtless be of service to the State Association.

Existing County Societies, however, can not bring the profession throughout the State into that cordial and close relationship with the State Association that seems desirable; and a plan of Branch Associations is now proposed, whereby organizations would be created that could be conveniently attended by the physicians throughout the State. Their membership would undoubtedly be sufficient to insure valuable scientific work, while the absence of fees and dues would remove one of the objections to a multiplication of society organizations. If the profession would give to the Branch Associations an active support at once, there would result valuable, convenient, and permanent medical organizations for all sections of the State.

Dr. H. O. Jewett, of Cortland County, asked whether the District Associations could be subdivided into County Societies.

Dr. Gouley, in reply, said that such a result was not contemplated; that there were existing County Societies, but the idea of the Branch Associations was to supplement County Associations. All knew how difficult it was to bring together a goodly number of the members of a County Society which had been in existence even as long as ten or twenty years. It was impossible to awaken any enthusiasm in a meeting consisting of only ten or fifteen members. In order to get together a large number of physicians, it was necessary to organize Branch Associations embracing members of the profession of from ten to fourteen counties. By such means, members from this large number of counties, already Fellows of the parent Association, would come together and discuss papers and the various topics which might be brought before them. In fact, it would not be necessary to have a County So-

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ciety. The Branch Associations would have an annual meeting, at some place to be selected by a proper committee, and as many special meetings as might be desired, held in rotation, in the different counties of each District.

Dr. C. W. Brown, of Chemung County, asked whether the members of the Branch Associations should organize new societies in their several counties, dropping their membership in the old County Medical Societies, or whether they should continue their membership in the present County Societies which were under allegiance to the Medical Society of the State of New York. In his own county, a large majority of the present County Medical Society was in sympathy with the National Code of Ethics; and he should like to know whether these gentlemen ought to drop their membership in the County Medical Society or not.

The President remarked that he presumed that new County Associations would be organized after a time.

Dr. Ferguson, replying to Dr. Brown's inquiry, said that the question involved had been presented to him several times during the past year, and that he had expressed the personal opinion that it was best to let the County Societies alone at present, retaining membership especially where the friends of the New York State Medical Association were in the majority, and to resist, by every legitimate means, any efforts to capture the County Societies in the interests of those hostile to the National Code of Ethics. In the majority of instances, all that would be necessary would be simply to take a passive attitude, and to let the State Society, if it saw fit, attempt to coerce the County Societies into the adoption of the "New Code." He should advise, when we were in possession, to simply "hold the fort." Nothing would be gained by deserting the County Societies, unless we were in the minority; and to yield the organization when held by a harmonious and fairly working majority, would be serving the interests of the old State Society.

Dr. I. H. Abell, of Jefferson County, said that the ship which had sailed as the New York State Medical Society seemed to be wrecked; that its members were grasping for something to hold on to and float; and naturally they desired something that would be safe and would rescue them from their peril. It had struck him that the best thing they could do would be to let the old County

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organizations go. Let them sink and go down with the old State organization; for this reason, that when they came together in the County Societies there were but few members present, and these were constantly at loggerheads. He thought the proposed Branch Associations were none too large for profitable, working societies; and he thought they offered us a chance to get aboard and sail harmoniously together. If the time should come when our numbers were sufficiently large to justify the organization of County Associations, we should then have them; but at present he thought the County Societies would not be numerous enough to work profitably.

Dr. E. M. Moore, of Monroe County, said that he had little feeling on this subject, but he would say a word with reference to the utility of such district organizations as had been proposed. We all knew, what had been repeated over and over again in this meeting, that the County Societies were too small for pleasant and useful work. Without reference to the difficulties pertaining to the question of ethics, all knew that, for scientific work, these bodies were too small. In central New York, a society similar to those which it was now proposed to organize had been formed, embracing such counties as had desired to join it. There were no special rules with regard to the number of counties which might join it, and, after some years, there were as many as eight or ten counties sending delegates to the meetings, which took place in alternate years at Rochester and at Syracuse. He could bear testimony to the great utility of that Association. He believed it had been more useful as a scientific body to him than any other society with which he had had anything to do. The organization was not too large, and it was by no means small. It was just large enough to give life and activity and to draw good meetings. The members once attempted to hold a two days' session; but they had not thought it wise to do so again, for they found that, while they could leave their patients for one day or for a part of a day, the majority of them could not remain away from their practice to attend a meeting of two days' duration. This Society had now been in existence for seventeen years; and it had been so successful that, as it was now proposed to divide the State into Branch Associations, he at once acceded to it as the wisest thing that could be done. There would be enough members coming from the counties to the Branch

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Associations, to make the meetings pleasant and profitable; and they could conveniently be present at a day's meeting, and return home in the evening to attend to their personal affairs. As to the existing County Societies, let each member conduct himself toward them as he saw fit; he had rights there, in the exercise of which, if he wished, he would be protected by the law. As to the speaker, however, he preferred to let them alone.

Dr. C. G. Pomeroy, of Wayne County, said that the proposed organization of Branch Associations had taken him by surprise, and he did not think that many of the members felt prepared to accept it. He could only say that, if the proposition contemplated the abandonment of the County Societies, he was entirely opposed to it.

Dr. Ferguson remarked that it was not proposed, in the plan for the organization of Branch Associations, to abandon the existing County Societies.

Dr. Pomeroy said that in that case he would offer no opposition to the plan.

Dr. H. O. Jewett said it would seem that there was a large number of members who were in favor of continuing in the County Societies, but he could not see how, without conforming to the by-laws, we could conscientiously be members of both organizations; nor could he see how members of the County Societies, in upholding the by-laws of those Societies, could be brought harmoniously into affiliation with the proposed Branch Associations.

Dr. J. Dunn, of Seneca County, thought the organization of the Branch Associations would have a tendency to absorb, so to speak, the County Societies. Every gentleman present knew that the majority of the profession throughout the State, outside of New York city, was in favor of the National Code of Ethics. The County Societies and the proposed Branch Associations were made up of these men; and the tendency would be, in his judgment, to merge the County Societies into the Branch Associations.

The plan of organization of the five Branch Associations was then adopted unanimously.

It was moved by Dr. Gouley and seconded that, on Thursday, November 20th, at the morning session, the President of each Branch Association shall report to this Association the progress made in the organization of his Branch Association, announcing

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the names of the Secretaries and other members of the Executive Committee. Carried.

Dr. Gouley, Chairman of the Committee of Arrangements, then introduced to the Association, Dr. William Detmold, President of the New York County Medical Association.

Dr. Detmold said that the profession of New York was much gratified when, after the action of the State Medical Society, a State Association was formed, through which the Empire State, which deservedly occupied the seat of honor conceded to it in the profession, could be represented in the American Medical Association. The better part of the medical profession of the city of New York, aggrieved at the action of the State Society, conceived the idea of redeeming the profession by forming a New York County Medical Association with the National Code of Ethics, he might say, nailed to the mast-head. The result of that first start need simply be alluded to before the noted assembly present, representing the whole State. He thought this start would have the desired effect of keeping the fire-brand of Nihilism in the profession, under full control.

He had not come before the Association for the purpose of self-laudation, but it was with what might be considered a pardonable pride that he responded to the request of some of his friends who organized the County Association to act as their first President, although he felt that a younger and more active man might have filled that position perhaps to more advantage, although not with a stronger desire to do good. Dr. Detmold then read the following titles of papers which had been read before the New York County Medical Association during its first year of existence :

1. "The Pathological and Practical Relations of the Doctrine of the Bacillus Tuberculosis," by Austin Flint, M. D.

2. "The Ætiology of Typhoid Fever," by E. G. Janeway, M. D.

3. "The Treatment of Typhoid Fever," by George L. Peabody, M. D.

4. "Scarlet Fever of the Fœtus in Utero and of the Mother at the Ninth Month of Pregnancy," by C. A. Leale, M. D.

5. "Note on Albuminuria," by Gaspar Griswold, M. D.

6. "The Summer Diarrhœa of Infants," by J. Lewis Smith, M. D.

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7. "The Parasitic Doctrine of Epidemic Cholera," by Austin Flint, M. D.

8. "Studies in Asiatic Cholera," by C. A. Leale, M. D.

In addition to this excellent series of papers, with the discussions which they called forth, a number of interesting pathological specimens had been presented to the Society. If other associations would show equal activity and do as good work, they would soon be in a position to defy Nihilism in the profession.

The Society then took a recess of ten minutes, during which the Fellows from the several districts met for the selection of members of the Nominating Committee. After the recess, the acting Secretary made the following report:

DR. J. W. S. GOULEY, New York County, *Member at Large of the Nominating Committee*, appointed by the President.

FIRST DISTRICT.—The Branch Association to meet at Utica, on the second Tuesday in July, 1885.

DR. WILLIAM GILLIS, Franklin County; DR. JOHN P. SHARER, Herkimer County—*Members of the Nominating Committee.*

DR. H. N. PORTER, Oneida County—*Secretary of the Branch Association.*

Signed, JOHN P. GRAY, *Chairman.*
IRA H. ABELL, *Secretary.*

SECOND DISTRICT.—The Branch Association to meet at Saratoga Springs, on the fourth Tuesday in June, 1885.

DR. R. C. MCEWEN, Saratoga County; DR. J. C. HANNAN, Rensselaer County—*Members of the Nominating Committee.*

DR. GEORGE E. MCDONALD, Schenectady County—*Secretary of the Branch Association.*

Signed, WILLIAM H. ROBB, *Chairman.*
J. R. REAGLES, *Secretary.*

THIRD DISTRICT.—The Branch Association to meet at Syracuse, on the second Tuesday in June, 1885.

DR. H. O. JEWETT, Cortland County; DR. GEORGE W. EARLL, Onondaga County—*Members of the Nominating Committee.*

DR. C. W. BROWN, Chemung County—*Secretary of the Branch Association.*

Signed, H. D. DIDAMA, *Chairman.*
C. W. BROWN, *Secretary.*

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FOURTH DISTRICT.—The Branch Association to meet at Rochester, on the second Tuesday in May, 1885.

DR. C. C. F. GAY, Erie County; DR. E. M. MOORE, Monroe County—*Members of the Nominating Committee.*

DR. THOMAS D. STRONG, Chautauqua County—*Secretary of the Branch Association.*

Signed, B. L. HOVEY, *Chairman.*
T. D. STRONG, *Secretary.*

FIFTH DISTRICT.—The Branch Association to meet in Brooklyn, on the third Tuesday in September, 1885.

DR. WHITMAN V. WHITE, New York County; DR. J. G. PORTEUS, Dutchess County—*Members of the Nominating Committee.*

DR. E. H. SQUIBB, Kings County—*Secretary of the Branch Association.*

Signed, N. C. HUSTED, *Chairman.*
E. H. SQUIBB, *Secretary.*

The following telegram was received, read, and ordered to be entered in the minutes:

"Congratulations to the New York State Medical Association from one who is 'absent in body, but present in spirit.'

Signed, FREDERICK HYDE.

"CORTLAND, NEW YORK, *November 18, 1884.*"

The minutes of the meeting were read and adopted, and the Association adjourned to meet at 2 P. M.

The afternoon and evening sessions were devoted to the reading of papers and their discussion.

E. D. FERGUSON, *Acting Secretary.*

SECOND DAY, WEDNESDAY, NOV. 19, 1884.—MORNING SESSION.

The Association was called to order at 9.30 A. M., by the President.

The acting Secretary read the minutes of the meetings of the previous day, which were approved.

The acting Secretary also announced the registration of Fellows since the last report.

Dr. J. W. S. GOULEY, of New York County, said, with reference to the division of the Association into sections, that the com-

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mittee was at present only prepared to report progress; and he recommended that no further consideration of this subject be taken at this meeting of the Association. He would, however, read the report of a scheme which, if deemed expedient, might be taken up for consideration at some future meeting:

Whereas: The number of scientific papers is already great, and is likely to increase in future to the extent of embarrassing the Association and of cutting short discussion, which is so much to be encouraged, it is—

Resolved: That hereafter, the greater part of the scientific work of the New York State Medical Association be transacted during the afternoon and evening sessions; and that the Association be divided into five sections, to be known respectively as—

Section 1. On Medicine. Before this section, shall be discussed questions relating to internal pathology, general and special pathology, and the diagnosis and treatment of the diseases of adults, children, and infants, which come under the management of physicians. Questions in special anatomy and physiology shall also be discussed before this section.

Section 2. On Surgery. Before this section, shall be discussed questions relating to external pathology, special surgical pathology, and the diagnosis and treatment of injuries and diseases which come within the province of surgeons. Questions relating to surgical anatomy shall also be discussed before this section.

Section 3. On Obstetrics. Before this section, shall be discussed questions relating to child-bed and the affections incident thereto, as well as the diseases peculiar to women.

Section 4. On Therapeutics. Before this section, shall be discussed therapeutical questions relating alike to medicine, surgery, and obstetrics, and questions relating to materia medica and toxicology.

Section 5. On State Medicine. Before this section, shall be discussed questions relating to epidemics; to isolation of the infected; to water-sheds; to water-supply of cities and towns; to the sewerage and medical police of cities; to the heating, ventilation, and drainage of private dwellings, schools, and public places of resort; to the milk-supply; to food-supply; to artificial beverages; to affections peculiar to artisans; to railway-injuries, etc.

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Resolved: That the Chairmen of these five Sections be elected annually, one from each of the five geographical districts as they appear in the Constitution of the Association, on the recommendation of the Nominating Committee; and that these Chairmen be, by virtue of their offices, members of the Committee of Arrangements of the Association.

Resolved: That any vacancy among the Chairmen of the Sections, occurring during the year, shall be filled by appointment by the Council.

Resolved: That the Secretaries of the Sections shall be appointed by the Council, one for each section, and that these Secretaries be, by virtue of their offices, members of the Committee of Arrangements of the Association.

After having read the preceding preamble and resolutions, DR. GOULEY said that it had been proposed to divide the Association at its present session into two sections (a medical and a surgical section), in order that more time might be given to the discussion of the large number of papers which were to be read; but, as such a division would interfere with the programme already prepared, it had finally been decided not to make any change at present. Doubtless, however, the amount of work to be done at the next meeting of the Association would be so great as to necessitate the formation of at least two sections; and he hoped the members would come prepared to freely discuss the question, should it be introduced.

On motion of the acting SECRETARY, the question of the division of the Association into sections was referred to the Council, to be reported upon at the next annual meeting of the Association.

Dr. GOULEY said that, if in order, there was a subject which he wished to bring before the Association. He thought it was desirable that the Fellows of the Association should have a home in New York city. In accordance with the articles of incorporation, the headquarters of Association were in New York city. But, while our headquarters were in this city, we had not yet a home, a place even like the hall in which the meeting was being held, and such a home was needed; a place where the gentlemen from the several districts could come, as members from the provinces belonging to the London clubs could, when visiting London, go to the club houses, and there leave their addresses and receive

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their letters, making it their home while staying in the city. He desired that the Fellows of this Association should have a place where they could leave their addresses, read the journals, and write their letters; and where they could be found by members residing in the city, who would try to make their visit always a pleasant one. We should, of course, begin in a more or less humble way, and he proposed that a beginning be made by organizing a library. If we found a library, we should have to provide a place in which to put it; and where the library was, there would be the city-home of the Association. Dr. Gouley then read the following resolutions, which had been reported favorably upon by the Council, and moved their adoption:

1. *Resolved:* That the Council of the New York State Medical Association recommends the formation of a Library, which shall be called The Library of the New York State Medical Association, and that this Library shall be placed in the City of New York.

2. *Resolved:* That the Library shall be under the management of the Council, and that the Council be instructed to appoint a committee of three councilors (one of whom shall act as librarian), to be known as the Library Committee.

3. *Resolved:* That there shall be created a library-fund, to be raised by voluntary contributions; and that this fund shall be under the control of the Council and be placed in the hands of the Treasurer of the Association.

Dr. Gouley, continuing his remarks, said that it might be asked, How are we to form this library? He would reply that there was already a nucleus, as several societies had sent their proceedings to the Secretary; and that, within a few months, we should be able to exchange transactions with a number of other societies, while we now have the promise of forty different journals to place upon our tables, without cost, as soon as a suitable place has been secured. Again, we have the promise of a room for the library, without cost, which can be occupied within four or five months. A fund, which amounts to several hundred dollars, is already on hand, and it is hoped that this fund may be soon increased to several thousand dollars. Voluntary contributions would be divided into two parts: one part going to the maintenance of the library, and the other part to be set apart as a sinking-fund, to be eventually used for the erection of a building.

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For instance, if a Fellow should give ten dollars, five dollars of it would go to the library and five dollars would be deposited in a trust-company as part of a sinking-fund for a building. It might be ten or more years before the Association would possess the building; but the younger men would live to enjoy it, even if the older men did not; while all would obtain immediate advantages from a library.

Dr. E. M. Moore, of Monroe County, seconded the resolutions, and said that, inasmuch as they had talked this matter over somewhat in the Council, he had not intended to speak, but wished to hear the opinions of others. The desirability of such a plan, he thought, would be plain to all. There was no question but that this would be an extremely pleasant and valuable plan if it could be carried out; a plan which would have the effect of strengthening the warm feeling of brotherhood which existed among the loyal members of the medical profession. The frequency with which Fellows of the Association visited New York increased as years went by; and the advantage of having a place where they could come together was self-evident. The only doubt in his mind was with regard to the success of the undertaking, from a pecuniary point of view. It looked to him as if it would give them a large amount of work to do; and yet, with the assurances which they already had, they could make a beginning, although, in the present condition of the Association, it could not be expected at once to raise a large sum of money from its Fellows, for this purpose. If a beginning could be made without a large sum of money, it would be well to begin now.

The resolutions were carried unanimously.

The President announced that Dr. H. H. Smith, of Philadelphia, in behalf of the Medical Society of the State of Pennsylvania, presented to the Library of the New York State Medical Association, an original copy of the National Code of Ethics, published within the first year of its adoption. The gift was accepted and ordered to be placed in the Library.

The acting Secretary, in behalf of Dr. Alfred L. Carroll, of Richmond County, who was absent, offered the following resolution, which was unanimously adopted:

Resolved: That the initials F. S. M. A. be adopted as indicating Fellowship in this Association, and that Fellows be advised

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to append these initials to their signatures in scientific publications.

The acting SECRETARY announced that DR. WILLIAM GILLIS, of Franklin County, would present to the Library, forty or fifty bound volumes of either the "London Medical Journal" or the "Edinburgh Medical Journal," as might be chosen by the Library Committee.

The minutes of the meeting were read and adopted, and the Association adjourned to meet at 2 P. M.

The afternoon and evening sessions were devoted to the reading of papers and their discussion.

E. D. FERGUSON, *Acting Secretary.*

THIRD DAY, THURSDAY, NOVEMBER 20, 1884.—MORNING SESSION.

The Society was called to order at 9.45 A. M., by the President.

The acting SECRETARY announced the additional number of Fellows registered from each district.

The report of the Council, recommending the appointment of a Committee on Necrology, was adopted. (See page 614.)

DR. S. S. PURPLE, of New York County, Chairman of the Auditing Committee, presented the following report:

NEW YORK, *November 19, 1884.*

To the New York State Medical Association:

The Committee appointed to audit the accounts of the Treasurer beg leave to report that they have examined the accounts and vouchers and find the same correct:

Receipts	$1,686.00
Disbursements	1,002.49
Balance in Treasury	$683.51

SAMUEL S. PURPLE,
C. C. WYCKOFF,
J. G. ORTON, } *Committee.*

The report of the Auditing Committee was accepted and adopted.

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Announcements were made by the Committee of Arrangements, with regard to the supper for the evening and the excursion on Friday.

DR. AUSTIN FLINT offered the following preamble and resolutions, which were adopted unanimously:

Whereas: The New York State Medical Association has heard with great gratification of the recent gift, by Mr. Andrew Carnegie, of fifty thousand dollars, for the erection of a building to be devoted to physiological and pathological laboratories, and of the subsequent gift, by Mr. William H. Vanderbilt, of half a million of dollars, for the promotion of scientific research and instruction in medicine, it is—

Resolved: That this Association tenders to Mr. Carnegie and to Mr. Vanderbilt congratulations and thanks on behalf of the interests of medical science and of humanity.

Resolved: That the Corresponding Secretary of the Association be instructed to transmit the foregoing resolution to Mr. Carnegie[1] and to Mr. Vanderbilt.

DR. S. S. PURPLE, on behalf of the Committee on Necrology, presented the following:

Whereas: An all-wise and inscrutable Providence has removed by death our late distinguished Fellow-associate, DR. JOHN G. ADAMS, one of the earliest Founders of this Association:

Resolved: That we recognize, in the services which Dr. Adams rendered in the formation of this Association, the work of an honorable, earnest, courteous, and indefatigable friend of truth and justice.

[1] The following has been received by the Corresponding Secretary:

WINDSOR HOTEL, *December* 15, 1884.

MY DEAR SIR: Absence has delayed acknowledgment of the very kind resolutions which your Association has been pleased to pass.

Believe me that the thanks of no profession could give me so much genuine satisfaction as those of yours—the noblest profession of them all.

Our popular heroes have hitherto been those who most successfully butchered their fellows; this is the type of barbarism.

The young physician, who in London recently gave his life that his patient might not die, is the type of the true hero of civilization.

Please take the first fitting opportunity to express my grateful acknowledgments to your Association, and believe me, Truly yours,

ANDREW CARNEGIE.

To DR. E. D. FERGUSON, *Corresponding Secretary*, etc.

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Resolved: That, while we mourn the loss of our distinguished associate, we bow with submission to the will of that Providence which holds truth the same, yesterday, to-day, and forever.

Resolved: That we shall cherish his memory as that of one who labored to promote the best interests of the medical profession of the whole country.

Resolved: That we deeply sympathize with the relatives of the deceased in this, their great bereavement.

Resolved: That a copy of the foregoing preamble and resolutions be entered upon the minutes of this Association, and that a copy of the same be transmitted to the relatives of our lamented associate. SAMUEL S. PURPLE.

The resolutions were adopted unanimously.

The acting SECRETARY then presented the following:

MARVIN RUSSELL PECK, M. D., was born at Sand Lake, Rensselaer County, N. Y., June 16, 1822. He attended lectures at the Albany Medical College, from 1848 to 1851, when he graduated. He settled in Glens Falls, Warren County, where he had been connected with his uncle in the drug-business. In 1853, he married Marcia L., daughter of Thomas H. Bemiss, of New York City. His life was a busy one, and he early won the confidence of the community in which he lived. As health-officer, his activity and good judgment proved of great service. He died suddenly in the street, from valvular disease of the heart, on April 4, 1884, leaving a widow and four children.

E. D. FERGUSON.

The Nominating Committee then submitted the following report, which was adopted unanimously:

NEW YORK, *November 20, 1884.*

The Nominating Committee of the New York State Medical Association present the following nominations for officers of the Association for the ensuing year:

President.—Dr. JOHN P. GRAY, Oneida County, 1st District.

Vice-Presidents.—Dr. WILLIAM. H. ROBB, Montgomery County, 2d District; Dr. J. G. ORTON, Broome County, 3d District; Dr. JOSEPH C. GREENE, Erie County, 4th District; Dr. J. C. HUTCHISON, Kings County, 5th District.

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Members of the Council.—1st District, Dr. WILLIAM GILLIS, Franklin County; 2d District, Dr. R. C. MCEWEN, Saratoga County; 3d District, Dr. FREDERICK HYDE, Cortland County; 4th District, Dr. DARWIN COLVIN, Wayne County; 5th District, Dr. J. W. S. GOULEY, New York County.

All of which is respectfully submitted.

C. C. F. GAY, *Chairman.*
R. C. MCEWEN, *Secretary.*

After sundry announcements by the acting SECRETARY, the Association took a recess of five minutes, during which time the members of the several districts met and appointed an Executive Committee for each of their respective Branch Associations. (See list of officers of the Branch Associations, page 5.)

The Chairman of the Committee of Arrangements then announced that it had become necessary to make a change in the programme for the following day. DR. LEWIS A. SAYRE being ill, his hour would be occupied with the exhibition of bacilli, at Bellevue Hospital, by DR. E. G. JANEWAY. From ten to eleven o'clock, there would be an exhibition of surgical cases at Bellevue Hospital, by DR. F. S. DENNIS. In the afternoon, there would be an excursion to the public hospitals and institutions on the islands.

DR. AUSTIN FLINT then offered the following:

Resolved: That we tender to DR. SAYRE our regret that we are prevented by his illness from observing illustrations of the application of his surgical dressings, and that we tender, also, our sympathy and our hope that he may soon be restored to health.

Resolved: That the SECRETARY transmit these resolutions to DR. SAYRE.

The resolutions were unanimously adopted.

Further announcements were made by the acting SECRETARY, including the appointment by the President-elect, of DR. S. S. PURPLE, of New York County, member at large of the Council.

The acting SECRETARY then offered the following resolution of thanks, which was unanimously adopted:

Resolved: That this Association extends to DR. J. W. S. GOULEY its thanks, and assures him that his indefatigable efforts in the interests of the profession of the State, and the valuable services

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he has rendered in the foundation and organization of the Association, are highly appreciated.

Dr. John P. Garrish, New York County, extended an invitation to the Fellows to visit the American Institute Fair, on complimentary tickets to be obtained from him.

The following invitation was also received :

"Sister Irene," the Sister Superior of the New York Foundling Asylum, invites the Fellows and guests of the New York State Medical Association to visit the Foundling Asylum at 3 P. M. on Saturday. The institution is on 68th Street, between Third and Lexington Avenues. J. Lewis Smith.

The President then introduced the President-elect, Dr. John P. Gray, of Oneida County.

Dr. Gray said he considered the compliment and the honor of the position conferred upon him the greatest that he had received and all that any medical man could ask for or expect to receive from his fellows. This Association was not an offshoot ; it was not anything which had been broken off as a limb or branch to grow ; it was an original and a grand conception, projected into the present as a great necessity for the advance and progress of medicine. It had shown that, with responsibility and duty to one another and to our patients, the medical profession of the State was not dead ; but it had felt the need of those rules which were necessary to maintain discipline, order, union, unanimity of action, and that self-restraint which every man recognized as important in all organized bodies and in all great matters where many minds had to act in the interpretation of principles and facts. It was when that band of union, which held together the profession and maintained harmonious action, was threatened, that this Association immediately and spontaneously sprung up ; not the offshoot, not the outgrowth of anything, but simply a body spontaneously brought together, where it now stood, the embodiment of the past, governed by certain principles which were acknowledged to be necessary in the regulation of the conduct of professional men toward each other. We were neither "old-coders," nor "new-coders," nor "no-coders" ; we were men who believed in the declaration of principles that underlie the necessary organization of bodies, as expressed in what was called the code, which was ac-

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cepted by every State in the Union and by the National Association. We were simply a body of men, an association which represented those principles which we believed to be necessary for ourselves and for all medical men.

The minutes of the session were read and adopted, and the Association adjourned to meet at 2 P. M.

The afternoon session was devoted to the reading of papers and their discussion.

REPORT OF THE COMMITTEE ON SCIENTIFIC CONTRIBUTIONS.

The last paper having been disposed of, the Chairman of the Committee on Scientific Contributions, DR. E. S. F. ARNOLD, of New York County, said, as it would doubtless be interesting to the Fellows to know what amount of scientific work had been done during the sessions, he would beg leave to report that, including the address of the PRESIDENT, and the morning addresses, no less than forty (40) papers, many of them of great interest, had been actually read and some of them discussed; ten (10) had been read by title and referred to the Publication Committee; three (3) papers were not presented, owing to their authors (two only) not putting in an appearance, and one was not called up, making the whole number of papers offered fifty-four (54).

The number of papers, including the address of the PRESIDENT and the three morning addresses, published in the "Transactions," is fifty.

E. D. FERGUSON, *Acting Secretary.*

[NOTE.—The supper provided by the Fellows of New York County, at 9.30 P. M. was worthy of the hosts, and was thoroughly enjoyed by the guests. The responses to the toasts brought into the lists of speakers representatives of several other States, and of the Army and Navy.

The demonstration of bacilli by Dr. E. G. Janeway, and the exhibition of cases by Dr. F. S. Dennis, at Bellevue Hospital, were well attended on Friday morning; and about one hundred and fifty Fellows, many accompanied by their wives and daughters, enjoyed the sail to the institutions on the islands, under the charge of the Commissioners of Public Charities and Correction.

At an impromptu meeting on board the boat, resolutions expressing the admiration of the Fellows of the Association for the efficient, humane, and economical management of the institutions by the Board of Commissioners were adopted and were gracefully acknowledged by Commissioners Hess, Brennan, and Porter.—E. D. F.]

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ANNUAL REPORT OF THE COUNCIL,

AND

MINUTES OF THE SESSIONS OF THE COUNCIL,

Held during the First Annual Session of the Association.

Minutes of an Adjourned Meeting of the Council, held at the Ebbitt House, Washington, D. C., May 6, 1884, at 9.30 A. M.

The President, DR. DIDAMA, in the Chair.

Present: Drs. Didama, Ferguson, Flint, Jr., Gouley, Hinton, Hovey, Husted, Hyde, E. M. Moore, and J. W. Moore.

The Secretary presented the Articles of Incorporation, which had been procured by Dr. A. Flint, Jr., the President and the Vice-Presidents acting as incorporators.

Dr. Flint, Jr., in behalf of the Committee appointed to draft a Constitution and By-laws, presented a report. The report was accepted, and the form of Constitution and By-laws was read by sections and adopted, and was finally adopted as a whole.

The Committee on Publication, consisting of Dr. Gouley and the Secretaries, was authorized to have an edition of four thousand copies of the Constitution and By-laws printed for distribution.

The preparation of a Certificate of Fellowship was referred to the Committee on Publication, with power.

The Committee on the Association Seal reported, and their report was accepted and adopted.

The Treasurer made an informal report of the finances of the Association.

The Council, by unanimous vote, extended its thanks to the

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President, Dr. H. D. Didama, for his gift of $100, reported by the Treasurer.

The Council then adjourned, to meet at the same place on the following day, at 9.30 A. M.

E. D. FERGUSON, *Secretary.*

The Council met, pursuant to adjournment, May 7, 1884, at 9.30 A. M., Dr. Hutchison being present in addition to the members present on the previous day.

The Secretary presented communications from Drs. Green, Reynolds, and Wilson, regretting their inability to attend.

The bill of Mr. H. L. Sprague, for services rendered in securing the incorporation of the Association, was received and ordered to be paid.

A communication from the Medical Association of the State of Alabama was received, and the Secretary was directed to have it published in the "Journal of the American Medical Association," with a suitable reply. It was also directed that a reply be sent to the Secretary of the Alabama Medical Association.

Dr. Gouley moved that a committee of three be appointed to prepare a plan for Branch Associations, and to report the same to the Council at the November meeting. Carried.

The Chair appointed Drs. Gouley, Flint, Jr., and Hinton, such committee, and, on motion, the Corresponding Secretary was added.

The Committee on a Medical Journal reported progress.

The Corresponding Secretary was authorized to take such measures as might seem best, to provide for the scientific work of the first annual meeting of the Association.

On motion of Dr. Flint, Jr., the Secretary was directed to add, in future lists of Fellows of the Association, the word "Founder" after each of the 164 names of Fellows appearing in the list published in the minutes of the Albany Convention, and after the name of each Fellow joining thereafter and until the close of the meeting of the Association in November, 1884, the word "Original."

On motion of Dr. J. W. Moore, and in accordance with the By-laws, Drs. Gouley, Flint, Jr., Hinton, and Husted were appointed a Committee of Arrangements, with power to add to their number.

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The minutes of the meetings of May 6 and May 7 were read and adopted, and the Council adjourned to meet in New York city on the day before the annual meeting of the Association.

E. D. FERGUSON, *Secretary.*

The Council met in annual session at the Murray Hill Hotel, New York city, November 17, 1884, at 7.30 P. M. The President, DR. DIDAMA, in the chair.

Present: Drs. Crawe, Didama, Ferguson, Flint, Jr., Gouley, Hinton, Hutchison, Reynolds, Townsend, Van de Warker, and Wilson.

The Secretary read the names of those who had applied for Fellowship since the publication of the minutes of the Albany Convention, and on motion the two hundred applicants, who had been properly vouched for, were appointed Original Fellows, which number, added to the one hundred and sixty-four Founders, made a total membership of three hundred and sixty-four Fellows.

The Secretary reported the death of four Fellows; *viz.*, Dr. M. R. Peck, of Warren County; Dr. J. R. Cotes, of Genesee County; and Drs. John G. Adams, and Allen S. Church, of New York County.

On motion of the Secretary, Section 2, Article iii, of the By-laws, was amended so that seven instead of ten members of the Council shall constitute a quorum, and Section 3, Article vii, was amended to read as follows: "No paper that has appeared in any publication, prior to being read at a meeting of the Association, shall be printed as a part of the transactions of the Association."

Dr. Flint, Jr., chairman of the Committee on a Medical Journal, reported informally, and the report was accepted.

On motion, it was decided that, of the elected members of the Council, those whose names appear first on the list for each district in the printed edition of the Constitution and By-laws, shall go out of office at the close of the first annual meeting of the Association.

Dr. Gouley reported the receipt of notices of the appointment of the following delegates to the first annual meeting of the Association: Dr. W. C. Wile, Connecticut; Drs. S. S. Clark and E. F. Upham, Vermont.

On motion, the President was authorized to receive properly accredited delegates and duly proposed invited guests.

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On motion, the appointment of delegates to other associations and societies was referred to the President and Secretaries with power.

A communication from the Secretary of the Nebraska State Medical Society, relative to the appointment of representatives to take cognizance of proceedings of State societies and associations and to act as channels of communication, was received.

It was moved and seconded that the Committee on Registration be empowered to secure such aid as they may need in the discharge of their duties. Carried.

Dr. Gouley then read the report of the Committee on the Formation of Branch Associations. The report was accepted and referred to the Association, with the recommendation that it be adopted. (See Proceedings of the Association, page 586.)

Dr. Gouley offered a resolution that the Association be divided during the afternoon and evening sessions into two sections, one on medicine and one on surgery, provided that a division of the Association be deemed necessary by the Committee of Arrangements.

On motion this question was referred to the Association.

Dr. Gouley reported a plan for the division of the Association into five sections for its scientific work, at subsequent meetings of the Association. It was directed that this plan be reported to the Association at the Wednesday morning session.

The Treasurer reported that, up to the present time, he had received $1,686, and had disbursed $1,002.49, leaving in his hands $683.51. On motion the report was accepted.

Dr. Gouley presented a series of resolutions relating to the formation of a library. On motion, the resolutions were approved by the Council, and referred to the Association, to be presented at the Wednesday morning session.

The Secretary reported the receipt of the following publications:

Transactions of the Indiana State Medical Society, 1884.

Report of the Michigan State Board of Health, 1883.

Laws of Michigan, relating to Public Health, 1883.

Proceedings of a Sanitary Convention held at Iona, Michigan, December 13 and 14, 1883.

Transactions of the Medical Society of West Virginia, 1884.

Transactions of the Nebraska State Medical Society, 1884.

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Transactions of the State Medical Society of Wisconsin, 1883.
Proceedings of the Connecticut Medical Society, 1884.

The minutes of the meeting were read and adopted, and the Council adjourned, subject to the call of the President.

E. D. FERGUSON,
Secretary of the Council.

The Council met at 10.30 P. M., November 19, 1884. The President, DR. DIDAMA, in the chair.

Present: Drs. Crawe, Didama, Ferguson, Flint, Jr., Gouley, Gray, Hinton, Hutchison, Hovey, E. M. Moore, Reynolds, and Sawyer.

The Secretary reported the list of applications for Fellowship received since the last meeting. All the applicants being duly vouched for, they were appointed, and the Secretary was directed to place their names on the roll of Original Fellows.

It was moved and seconded that the President and Vice-Presidents be constituted a Permanent Committee on Necrology, to secure brief biographical notices of deceased Fellows of the Association, in their respective districts, for publication in the Transactions. Carried.

The minutes of the meeting were read and adopted, and the Council adjourned *sine die*.

E. D. FERGUSON, *Secretary.*

The Council for 1884–'85 met, on the adjournment of the Association, November 20, 1884, at 6 P. M., with the President, DR. JOHN P. GRAY, in the chair.

Present: Drs. Colvin, Ferguson, Flint, Jr., Gillis, Gouley, Gray, Greene, Hinton, McEwen, Purple, Townsend, and Van de Warker.

It was moved and seconded that the next meeting of the Association be held in New York city, beginning on the third Tuesday in November, 1885. Carried.

The members of the Council for the 5th District were appointed a Committee of Arrangements, to select their own Chairman and add to their number as may be deemed by them expedient.

The President appointed the Committee on Publications as

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follows: Drs. A. Flint, Jr., J. W. S. Gouley, J. H. Hinton, S. S. Purple, and the two Secretaries of the Association.

The President also appointed Drs. Gouley, Hinton, and Flint, Jr., the Library Committee.

The Secretary was directed to add to the list of Original Fellows the names of those whose applications were already received and who were properly indorsed.

The minutes of the meeting were read and adopted, and the Council adjourned.

E. D. FERGUSON, *Secretary.*

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LIST OF FELLOWS,

BY DISTRICT AND COUNTY.

FIRST, OR NORTHERN DISTRICT.

CLINTON COUNTY.

	Church, C. A.	Black Brook.
Founder.	Coit, W. N.	Champlain.
Founder.	Dodge, L. C.	Rouse's Point.
Original.	Howe, E. S.	Saranac.
Founder.	Lyon, E. M.	Plattsburgh.

5

ESSEX COUNTY.

Founder.	Barton, Lyman.	Willsborough.
Original.	D'Avignon, Francis J.	Au Sable Forks.
Founder.	Edgerly, E. F.	Moriah Centre.
Original.	La Bell, M. J.	Lewis.
Original.	Pollard, A.	Westport.
Original.	Rand, Hannibal W.	Keene.
Original.	Rice, Isaac.	Bloomingdale.
Original.	Riley, Andrew W.	Au Sable Forks.
Original.	Robinson, Ezra A.	Jay.
Founder.	Sawyer, Conant.	Au Sable Forks.
Original.	Turner, Melvin H.	Hammondsville.

11

FRANKLIN COUNTY.

Founder.	Gillis, William.	Fort Covington.

1

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HAMILTON COUNTY.

McGann, Thomas. Wells.

1

HERKIMER COUNTY.

Douglass, A. J. Ilion.
Fox, Eli. Mohawk.
Original. Glidden, Charles H. Little Falls.
Green, H. H. Paine's Hollow.
Original. Potter, Vaughn C. Starkville.
Original. Sharer, John P. Little Falls.
Original. Southworth, Mark A. Little Falls.
Original. Young, John D. Starkville.

8

JEFFERSON COUNTY.

Founder. Abell, Ira H. Antwerp.
Founder. Crawe, J. Mortimer. Watertown.
Founder. Johnson, Charles M. Watertown.
Original. Johnson, P. H. Adams.
Miller, J. H. Carthage.

5

LEWIS COUNTY.

Crosby, Alexander H. Lowville.
Douglass, Charles E. Constableville.
Joslin, Albert A. Greig.

3

ONEIDA COUNTY.

Armstrong, J. A. Clinton.
Original. Backus, Ogden. Utica.
Bagg, M. M. Utica.
Barnum, D. Albert. Cassville.
Original. Blumer, G. Alder. Utica.
Original. Booth, Wilbur H. Utica.
Original. Brush, Edward N. Utica.
Clarke, Wallace. Utica.
Crim, Frank D. Utica.
Dodge, Amos P. Oneida Castle.
Douglass, James W. Booneville.
English, G. P. Booneville.
Flandrau, Thomas M. Rome.
Fraser, Jefferson C. Ava.

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Fuller, Earl D. Utica.
Gibson, William M. Utica.
Glass, J. H. Utica.
Founder. Gray, John P. Utica.
Gray, John P., Jr. Utica.
Holden, Arthur L. Utica.
Hughes, Henry R. Clinton.
Original. Hunt, James G. Utica.
Kelly, John Devin. Utica.
Kuhn, William. Rome.
Munger, Charles. Knoxboro.
Nelson, William H. Taberg.
Palmer, H. C. Rome.
Palmer, W. B. Utica.
Original. Pilgrim, Charles W. Utica.
Founder. Porter, H. N. N. Y. Mills.
Quinn, Hamilton S. Utica.
Reid, C. C. Rome.
Swartwout, Leander. Prospect.
Wagner, Charles Gray. Utica.
West, M. C. Rome.

85

OSWEGO COUNTY.

Bacon, Charles G. Fulton.
Bates, Nelson W. Central Square.
Original. De Witt, Byron. Oswego.
Drake, D. D. Central Square.
Original. Hall, William A. Fulton.
Huntington, J. W. Mexico.
Johnson, George P. Mexico.
Nelson, George W. Orwell.
Todd, John B. Parish.
Original. Tully, A. M. Oswego.

10

ST. LAWRENCE COUNTY.

Original. Sutton, G. L. Massena.

1

WARREN COUNTY.

Original. Barney, C. S. Glens Falls.
Original. Ferguson, James. Glens Falls.

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Original. Martine, Godfrey R. Glens Falls.
Founder. *Peck, M. R. Glens Falls.

4

Total..... 84

SECOND, OR EASTERN DISTRICT.

ALBANY COUNTY.

Founder. Bailey, Theodore P. Albany.
Original. Hall, John E. Green Island.
Original. Houston, D. W. Cohoes.
Original. Lyon, George E. West Troy.
Founder. Moore, Joseph W. Cohoes.
Founder. Peters, Samuel. Cohoes.
Founder. Sabin, Robert H. West Troy.
Founder. Sabin, W. B. West Troy.
Original. Van Vranken, A. T. West Troy.

9

COLUMBIA COUNTY.

Original. Bates, Xyris T. New Lebanon.
Original. Benham, J. C. Hudson.
Original. Lockwood, J. W. Claverack.
Original. Smith, H. Lyle. Hudson.
Founder. Wilson, Thomas. Claverack.

5

FULTON COUNTY.

Original. Blake, Clarence R. Northville.
Founder. De Zouche, Isaac. Gloversville.

2

GREENE COUNTY.

Original. Conkling, George. Durham.
Original. Selden, O. G. Catskill.
Original. Selden, Robert. Catskill.

3

MONTGOMERY COUNTY.

Founder. Ayres, Alexander. Fort Plain.
Original. Ayres, Douglas. Fort Plain.
Original. Biggam, William H., Jr. Fort Plain.

* Deceased.

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Original.	* Cornell, F. O.	Port Jackson.
	French, S. H.	Amsterdam.
Original.	Graves, Ezra.	Amsterdam.
Original.	Johnson, Richard G.	Amsterdam.
Original.	Leach, H. M.	Glen.
	Parr, John.	Burl.
Founder.	Robb, William H.	Amsterdam.
Original.	Rulison, Elbert T.	Amsterdam.

11

RENSSELAER COUNTY.

Original.	Allen, Amos.	Grafton Centre.
Founder.	Allen, Charles S.	Greenbush.
Original.	Baynes, William T.	Troy.
Founder.	Bonesteel, W. N.	Troy.
Original.	Bontecou, R. B.	Troy.
Original.	Bucklin, Daniel D.	Lansingburgh.
Founder.	Burbeck, Charles H.	Troy.
Founder.	Burton, Matthew H.	Troy.
Original.	Cooper, William C.	Troy.
Founder.	Cooper, William S.	Troy.
Original.	Crombie, Walter C.	Schaghticoke.
Founder.	Ferguson, E. D.	Troy.
Founder.	Finder, William.	Troy.
Founder.	Hannon, J. C.	Hoosick Falls.
Founder.	Harvie, J. B.	Troy.
Original.	Heimstreet, Thomas B.	Troy.
Original.	Lester, S. W.	Troy.
Original.	McTammany, William F.	Troy.
Original.	Magee, Daniel.	Troy.
Original.	Magee, John.	Lansingburgh.
	Marsh, James P.	Troy.
Founder.	Mitchell, H. E.	Troy.
Founder.	Nichols, C. E.	Troy.
Founder.	Nichols, W. H.	West Sand Lake.
Original.	Rogers, S. Frank.	Troy.
Founder.	Rousseau, Zotique.	Troy.
Founder.	Seymour, W. Wotkyns.	Troy.
Original.	Skinner, S. A.	Hoosick Falls.
Original.	Traver, R. D.	Troy.
Original.	Winship, C. A.	Millville.

30

* Deceased.

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SARATOGA COUNTY.

Founder. Babcock, Myron N. Saratoga Springs.
Founder. Comstock, George F. Saratoga Springs.
Founder. Creal, Charles E. Saratoga Springs.
Original. Dunlop, J. J. Waterford.
Founder. Grant, Charles S. Saratoga Springs.
Original. Hall, W. H. Saratoga Springs.
Founder. Hodgman, William H. Saratoga Springs.
Original. Johnson, I. G. Greenfield Centre
Founder. Lancashire, J. H. Saratoga Springs.
Founder. McEwen, Robert C. Saratoga Springs.
Original. Murray, B. J. Wilton.
Original. Preston, J. R. Schuylerville.
Founder. Reynolds, Tabor B. Saratoga Springs.
Original. Sherer, J. D. Waterford.
Original. Stubbs, Roland H. Waterford.

15

SCHENECTADY COUNTY.

Founder. De La Mater, S. G. Duanesburgh.
Ennis, Alexander. Pattersonville.
Original. McDonald, George E. Schenectady.
Original. Reagles, James R. Schenectady.
Original. Van Zandt, H. C. Schenectady.

5

SCHOHARIE COUNTY.

Original. Hagadorn, William. Gilboa.
Original. Kingsley, H. F. Schoharie.

2

WASHINGTON COUNTY.

Original. Hinds, F. J. Salem.

1

Total.....88

THIRD, OR CENTRAL DISTRICT.

BROOME COUNTY.

Founder. Chittenden, J. H. Binghamton.
Original. Ely, H. O. Binghamton.
Original. Hall, H. C. Lisle.

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Original. Jackson, D. P. Binghamton.
Founder. Orton, John G. Binghamton.
Founder. Putnam, Frederick W. Binghamton.
Original. Race, W. F. Binghamton.
Founder. Richards, C. B. Binghamton.
8

CAYUGA COUNTY.

Original. Kenyon, M. Moravia.
Original. Laird, William R. Auburn.
Founder. MacDonald, Carlos F. Auburn.
3

CHEMUNG COUNTY.

Original. Brown, Charles W. Elmira.
Original. Flood, P. H. Elmira.
Original. Price, John H. Elmira.
Original. Ross, Frank W. Elmira.
Squire, C. L. Elmira.
Original. Wales, Theron A. Elmira.
6

CHENANGO COUNTY.

Founder. Avery, George W. Norwich.
Original. Blair, L. P. McDonough.
Original. Brooks, Leroy J. Norwich.
Original. Johnson, L. M. Greene.
Original. Lyman, E. S. Sherburne.
Original. Lyman, H. C. Sherburne.
6

CORTLAND COUNTY.

Original. Clark, DeWitt. Marathon.
Founder. Green, Caleb. Homer.
Founder. Hendrick, Henry C. McGrawville.
Founder. Hyde, Frederick. Cortland.
Founder. Jewett, Homer O. Cortland.
Original. Knapp, John H. Harford.
Original. Smith, Marcellus R. Cincinnatus.
Original. Tripp, John D. Virgil.
8

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DELAWARE COUNTY.

Original.	Allaben, O. M.	Margaretville.
	Smith, George C.	Delhi.
Original.	Young, Oscar H.	Sidney Centre.

3

MADISON COUNTY.

Original.	Babcock, H. E.	Canastota.
Original.	Birdsall, Gilbert.	N. Brookfield.
	Bullock, E. H.	Cazenovia.
	Cavana, Martin.	Oneida.
Original.	Carpenter, H. W.	Oneida.
Original.	Nicholson, A. R.	Madison.

6

ONONDAGA COUNTY.

Original.	Aberdein, Robert.	Syracuse.
Founder.	Allen, Henry B.	Baldwinsville.
Original.	Cook, George W.	Syracuse.
Founder.	Dallas, Alexander J.	Syracuse.
Founder.	Didama, H. D.	Syracuse.
Original.	Donohue, Florince O.	Syracuse.
Founder.	Earll, George W.	Skaneateles.
Original.	Edwards, Amos S.	Syracuse.
Original.	Edwards, George A.	Syracuse.
Founder.	Elsner, Henry L.	Syracuse.
Original.	Gillette, Charles A.	Syracuse.
Original.	Hatch, C. A.	Syracuse.
Founder.	Head, A. D.	Syracuse.
Original.	Higgins, S. M.	Memphis.
Original.	Jacobson, Nathan.	Syracuse.
Original.	Knapp, E. A.	Jamesville.
Founder.	Kneeland, Jonathan.	S. Onondaga.
Original.	Munson, W. W.	Otisco.
Founder.	Parsons, Israel.	Marcellus.
Original.	Saxer, Leonard A.	Syracuse.
Founder.	Skinner, L. C.	Belle Isle.
Founder.	Slocum, J. O.	Camillus.
Founder.	Van de Warker, Ely.	Syracuse.
Original.	Whitford, James.	Onondaga Valley.

24

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OTSEGO COUNTY.

Original. Hills, L. H. Cooperstown.
Founder. Leaning, J. K. Fly Creek.
Original. Martin, J. H. Otego.
Original. Merritt, George. Cherry Valley.
Original. Sweet, Joseph. Unadilla.
5

SCHUYLER COUNTY.

Smelzer, B. T. Havana.
1

SENECA COUNTY.

Original. Dunn, J. Lodi.
Founder. Lester, Elias. Seneca Falls.
Original. Rhodes, S. D. Seneca Falls.
Founder. Schoonmaker, E. J. Magee's Corners.
4

TIOGA COUNTY.

Original. Ayer, W. L. Owego.
Original. Eastman, R. W. Owego.
2

TOMPKINS COUNTY.

Founder. Beers, J. E. Danby.
Founder. Fitch, William. Dryden.
2

Total..... 78

FOURTH, OR WESTERN DISTRICT.

ALLEGANY COUNTY.

Original. Stephenson, J. A. Scio.
Original. Wakely, B. C. Angelica.
2

CATTARAUGUS COUNTY.

Original. Tompkins, O. A. East Randolph.
1

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CHAUTAUQUA COUNTY.

Founder. Ames, Edward. Sherman.
Founder. Chace, William. Mayville.
Original. Darling, Frank B. Westfield.
Founder. Dean, H. J. Brocton.
Founder. Strong, Thomas D. Westfield.

5

ERIE COUNTY.

Founder. Andrews, Judson B. Buffalo.
Original. Atwood, H. L. Collins Centre.
Original. Banta, Rollin L. Buffalo.
Original. Barker, Arthur M. Buffalo.
Original. Bartlett, F. W. Buffalo.
Original. Boies, Loren F. East Hamburgh.
Original. Briggs, Albert H. Buffalo.
Original. Burwell, George M. Buffalo.
Founder. Cronyn, John. Buffalo.
Original. Dagenais, Alphonse. Buffalo.
Original. Daniels, Clayton M. Buffalo.
Original. Dorland, Elias T. Buffalo.
Founder. Gay, Charles C. F. Buffalo.
Gould, Cassius W. Buffalo.
Original. Greene, De Witt C. Buffalo.
Founder. Greene, Joseph C. Buffalo.
Original. Greene, W. D. Buffalo.
Original. Harrington, D. W. Buffalo.
Founder. Hoyer, F. F. Tonawanda.
Original. Johnson, Thomas M. Buffalo.
Original. King, J. E. Buffalo.
Long, Ben. G. Buffalo.
Original. Lynde, U. C. Buffalo.
Original. Murray, W. D. Tonawanda.
Original. *Pask, William. Buffalo.
Original. Pettit, John A. Buffalo.
Original. Putnam, James W. Buffalo.
Founder. Ring, William. Buffalo.
Founder. Rochester, Thomas F. Buffalo.
Thornton, William H. Buffalo.
Founder. Tremaine, W. S. Buffalo.
Original. Vaughn, Frank O. Buffalo.
Founder. Wyckoff, C. C. Buffalo.

33

* Deceased.

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GENESEE COUNTY.

Founder.	*Cotes, John R.	Batavia.
Original.	Crane, Frank W.	Corfu.
Founder.	Jackson, A. P.	Oakfield.
Original.	McNamara, Daniel L.	Batavia.
Founder.	Sprague, W. B.	Pavilion.
Founder.	Townsend, M. W.	Bergen.

6

LIVINGSTON COUNTY.

Founder.	Gray, John W.	Avon.
Original.	Menzie, R. J.	Caledonia.
Original.	Moyer, F. H.	Moscow.

3

MONROE COUNTY.

Original.	Briggs, William H.	Rochester.
Original.	Buckley, Charles.	Rochester.
Original.	Buckley, James C.	Rochester.
Original.	Burke, John J. A.	Rochester.
Original.	Collins, Thomas B.	Rochester.
Original.	Dunning, J. D.	Webster.
Original.	Fuller, Winfield S.	Fairport.
Founder.	Hovey, B. L.	Rochester.
Founder.	Moore, E. M.	Rochester.
Original.	Moore, E. M., Jr.	Rochester.
Original.	Moore, Richard Mott.	Rochester.
	Nold, John B.	Rochester.
Original.	O'Hare, Thomas A.	Rochester.
Original.	Pease, Joseph.	Hamlin.
Founder.	Reynolds, R. C.	Pittsford.

15

NIAGARA COUNTY.

Original.	Clark, Simeon T.	Lockport.

1

ONTARIO COUNTY.

Original.	Allen, D. S.	Hall's Corners.
Original.	Allen, James H.	Gorham.
Founder.	Bentley, F. R.	Cheshire.
Original.	Budd, J. Henry.	Geneva.
Original.	Hicks, W. Scott.	Bristol.

* Deceased.

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Original. Hollister, E. O. East Bloomfield.
Founder. Nichols, H. W. Canandaigua.
Founder. Simmons, E. W. Canandaigua.
Founder. Smith, Joseph T. Canandaigua.
Original. Vanderhoof, F. D. Phelps.
10

ORLEANS COUNTY.

Original. Bailey, William C. Albion.
Original. Barnum, E. E. Waterport.
Founder. Chapman, James. Medina.
Original. Taylor, John H. Holley.
Founder. Tompkins, H. C. Knowlesville.
5

STEUBEN COUNTY.

Original. Ellison, M. D. Canisteo.
Original. Jamison, John S. Hornellsville.
Original. Perry, N. M. Troupsburgh.
3

WAYNE COUNTY.

Founder. Arnold, J. N. Clyde.
Founder. Colvin, Darwin. Clyde.
Original. Ingraham, Samuel. Palmyra.
Original. Landon, N. E. Newark.
Founder. Pomeroy, C. G. Newark.
Original. Sayers, Alexander. Marion.
Original. Sprague, J. A. Williamson.
Original. Young, Augustus A. Newark.
8

WYOMING COUNTY.

Original. Baker, Milan. Warsaw.
Original. Ellinwood, A. G. Attica.
Original. Palmer, George M. Pike.
Original. Rae, Robert. Portageville.
4

YATES COUNTY.

Oliver, William. Penn Yan.
Smith, David M. Penn Yan.
2

Total.....98

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FIFTH, OR SOUTHERN DISTRICT.

DUTCHESS COUNTY.

Original. Barnes, Edwin. Pleasant Plains.
Original. Bayley, Guy Carleton. Poughkeepsie.
Founder. Campbell, C. N. Poughkeepsie.
Founder. Codding, G. H. Amenia.
Founder. Cramer, William. Poughkeepsie.
Original. Fletcher, C. L. Wing's Station.
Founder. Guernsey, Desault. Amenia.
Founder. Kittridge, C. M. Fishkill-on-Hudson.
Founder. Leroy, J. D. Poughkeepsie.
Founder. Porteous, J. G. Poughkeepsie.
Founder. Pultz, M. T. Stanfordville.
Founder. Slack, Henry. Fishkill-on-Hudson.
Original. Van Wyck, R. C. Hopewell Junction.
Original. Young, John. Fishkill-on-Hudson.

14

KINGS COUNTY.

Original. Andrews, John S. New Lots.
Founder. Baker, George W. Brooklyn.
Original. Brundage, Amos H. Brooklyn.
Original. Conway, John Francis. Brooklyn.
Creamer, Joseph. Brooklyn, E. D.
Creamer, Joseph M. Brooklyn, E. D.
Feeley, James F. Brooklyn, E. D.
Founder. Hutchison, Joseph C. Brooklyn.
Original. Jenkins, John A. Brooklyn, E. D.
Original. Leighton, N. W. Brooklyn.
Original. Lloyd, T. Mortimer. Brooklyn.
Original. Lung, Jesse B. Brooklyn.
Original. McCollom, William. Brooklyn.
Original. Minard, E. J. C. Brooklyn.
Original. Murray, S. J. Brooklyn.
Original. North, Nelson L. Brooklyn.
Original. Paine, Arthur R. Brooklyn.
Original. Partridge, Charles C. Brooklyn.
Original. Pray, S. R. Brooklyn.
Founder. Rushmore, J. D. Brooklyn.
Original. Russell, W. G. Brooklyn.
Founder. Segur, Avery. Brooklyn.

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Original. Shepard, A. Warren. Brooklyn.
Original. Sizer, Nelson Buell de S. Brooklyn.
Founder. Squibb, E. H. Brooklyn.
Founder. Squibb, E. R. Brooklyn.
Original. Steinke, Carl Otho Hermann. Brooklyn.
Original. Thayer, William Henry. Brooklyn.
Original. Wieber, George. Brooklyn.
Original. Williams, William H. Brooklyn.
Founder. Wyckoff, Richard M. Brooklyn.

81

NEW YORK COUNTY.

Founder. * Adams, John G. New York.
Original. Allen, S. Busby. New York.
Original. Arcularius L. New York.
Original. Arnold, Edmund S. F. New York.
Arnold, Glover C. New York.
Original. Bathgate, James. Morrisania, New York.
Original. Biggs, Herman M. New York.
Original. Blakeman, W. N. New York.
Founder. Bozeman, Nathan. New York.
Original. Bryant, Joseph D. New York.
Original. Buchanan, Alexander. New York.
Original. Bull, Charles Stedman. New York.
Original. Burchard, Thomas H. New York.
Founder. Cameron, E. M. New York.
Original. Carter, H. Skelton. New York.
Original. Chauveau, Jean F. New York.
Original. Chrystie, T. M. Ludlow. New York.
Founder. * Church, Allen S. New York.
Clark, Alonzo. New York.
Original. Coe, H. C. New York.
Founder. Conover, W. S. New York.
Conway, John R., Jr. New York.
Original. Curry, Walker. New York.
Original. Denison, C. Ellery. New York.
Original. Denison, Ellery. New York.
Founder. Dennis, Frederic S. New York.
Original. Dent, Emmet C. New York.
Founder. Detmold, William. New York.
Founder. Du Bois, Abram. New York.

* Deceased.

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Original. Du Bois, Matthew B. New York.
Original. Eliot, Ellsworth. New York.
Flinn, Thomas W. P. New York.
Founder. Flint, Austin. New York.
Founder. Flint, Austin, Jr. New York.
Founder. Flint, William H. New York.
Original. Franklin, Thomas M. New York.
Original. Furman, Guido. New York.
Original. Garrish, J. P. New York.
Founder. Gouley, John W. S. New York.
Original. Griswold, Gaspar. New York.
Founder. Hamilton, Frank H. New York.
Original. Harrison, George Tucker. New York.
Original. Hartmann, Jacob. New York.
Original. Hills, S. Augden. New York.
Founder. Hinton, John H. New York.
Founder. Hodgman, Abbott. New York.
Hubbard, Oliver P. New York.
Founder. Hubbard, Samuel T. New York.
Original. Ilgen, Ernest. New York.
Founder. Janeway, Edward G. New York.
Original. Lauer, Eugen. New York.
Founder. Leale, Charles A. New York.
Founder. Linsly, Jared. New York.
Founder. Lusk, William T. New York.
Lynch, Patrick J. New York.
Founder. McLeod, S. B. Wylie. New York.
Original. McLochlin, James A. New York.
Original. McNamara, Laurence J. New York.
Founder. Manley, Thomas H. New York.
Meier, G. C. H. New York.
Original. Miller, William T. New York.
Original. Miranda, Ramon L. New York.
Original. Mitchell, Hubbard W. New York.
Original. Murphy, John. New York.
Newberry, J. S. New York.
Original. Newman, Robert. New York.
Founder. Nicoll, Henry D. New York.
Original. Oberndorfer, Isidor P. New York.
Original. Parsons, John. New York.
Original. Porter, P. Brynberg. New York.
Founder. Purple, Samuel S. New York.
Original. Ricketts, Benjamin M. New York.

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Original. Sabine, Gustavus A. New York.
Founder. Sayre, Lewis A. New York.
Founder. Sayre, Lewis Hall. New York.
Shrady, John. New York.
Original. Skiff, George V. New York.
Original. Smith, J. Lewis. New York.
Original. Smith, Samuel W. New York.
Original. Smith, Stephen. New York.
Original. * Stephens, Frederick P. New York.
Founder. Taylor, Isaac E. New York.
Founder. Thomas, T. Gaillard. New York.
Founder. Tucker, Carlos P. New York.
Original. Tyler, Howell. New York.
Original. Wallach, Joseph G. New York.
Founder. Ward, Charles S. New York.
Warner, John W. New York.
Founder. White, Whitman V. New York.
Founder. White, William T. New York.
Original. Whitehorne, Edward E. New York.
Founder. Wiener, Joseph. New York.
Founder. Wood, Charles S. New York.
Original. Wyeth, John A. New York.
Founder. Young, William. New York.

95

ORANGE COUNTY.

Original. Eager, William B. Middletown.
Original. Hunt, James H. Port Jervis.
Original. Pooler, Hiram A. Goshen.

3

PUTNAM COUNTY.

Founder. Murdock, G. W. Cold Spring.

1

QUEENS COUNTY.

Original. Burns, William J. Roslyn.
Founder. * Davidson, John. Hempstead.
Original. Rave, Edward G. Oyster Bay.
Original. Webb, Edwin. Hempstead.

4

* Deceased.

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RICHMOND COUNTY.

Founder. Carroll, Alfred Ludlow. New Brighton.
Founder. Johnston, F. U. New Brighton.

2

ROCKLAND COUNTY.

Founder. Govan, William. Stony Point.

1

SUFFOLK COUNTY.

Original. Banks, George B. Huntington.
Original. Chambers, M. L. Port Jefferson.
Original. Lindsay, Walter. Huntington.
Founder. Woodend, W. D. Huntington.

4

SULLIVAN COUNTY.

Original. Bennett, Thomas W. Jeffersonville.
Original. Gillespie, A. A. Bethel.
Original. Munson, J. A. Grahamville.
Original. Purdy, Isaac. Mongaup Valley.

4

ULSTER COUNTY.

Original. Chambers, Jacob. Kingston.
Founder. Cooke, George W. Kingston.
Original. Hoornbeck, Philip Du Bois. Wawarsing.
Founder. Hühne, August. Rondout.
Original. Hühne, Frederick. Kingston.
Founder. McKenzie, E. Port Ewen.
Original. Van Hoevenberg, H. Kingston.
Original. Ward, Stanley M. Ellenville.

8

WESTCHESTER COUNTY.

Ashton, J. H., Dobb's Ferry.
Original. Brush, E. F. Mount Vernon.
Founder. Collins, Isaac G. Sing Sing.
Original. Coutant, Richard B. Tarrytown.
Original. Furman, J. Henry. Tarrytown.
Original. Huntington, H. K. New Rochelle.
Founder. Husted, Nathaniel C. Tarrytown.
Original. Lyons, G. A. New Rochelle.
Founder. Pryer, William C. New Rochelle.

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Original. Schmid, H. Ernest. White Plains.
Original. Southworth, R. J. Yonkers.
Original. Wells, William L. New Rochelle.
12

Total..... 179

SUMMARY OF FELLOWSHIP BY DISTRICT.

First District	84
Second District	83
Third District	78
Fourth District	98
Fifth District	179
	522
Deceased (Founders, 5; Original Fellows, 3)	8
Total Fellowship	514

RECAPITULATION.

Founders, published in the Proceedings of the Convention at Albany in February, 1884	164
Original Fellows, appointed before the adjournment of the first Annual Meeting in 1884	286
Fellows, appointed since the adjournment of the first Annual Meeting in 1884	72
	522
Deceased (Founders, 5; Original Fellows, 3)	8
Total Fellowship	514

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ALPHABETICAL LIST OF FELLOWS.

Abell, Ira H., Antwerp, Jefferson Co. Founder.
Aberdein, Robert, 2 Greeley Block, Syracuse, Onondaga Co. Original.
* Adams, John G., New York, New York Co. Founder.
Allaben, O. M., Margaretville, Delaware Co. Original.
Allen, Amos, Grafton, Rensselaer Co. Original.
Allen, Charles S., Greenbush, Rensselaer Co. Founder.
Allen, D. S., Hall's Corners, Ontario Co. Original.
Allen, Henry B., Baldwinsville, Onondaga Co. Founder.
Allen, James H., Gorham, Ontario Co. Original.
Allen, S. Busby, 144 E. 83d St., New York, New York Co. Original.
Ames, Edward, Sherman, Chautauqua Co. Founder.
Andrews, John S., Pennsylvania Ave., New Lots, Kings Co. Original.
Andrews, Judson B., Buffalo Ins. Asylum, Buffalo, Erie Co. Founder.
Arcularius, L., 180 2d Av., New York, New York Co. Original.
Armstrong, J. A., Clinton, Oneida Co.
Arnold, Edmund S. F., 53 W. 38th St., New York, New York Co. Original.
Arnold, Glover C., 115 E. 30th St., New York, New York Co.
Arnold, J. N., Clyde, Wayne Co. Founder.
Ashton, J. H., Dobb's Ferry, Westchester Co.
Atwood, H. L., Collins Center, Erie Co. Original.
Avery, George W., Norwich, Chenango Co. Founder.
Ayer, W. L., Owego, Tioga Co. Original.
Ayres, Alexander, Fort Plain, Montgomery Co. Founder.
Ayres, Douglas, Fort Plain, Montgomery Co. Original.
Babcock, H. E., Canastota, Madison Co. Original.
Babcock, Myron N., Saratoga Springs, Saratoga Co. Founder.
Backus, Ogden, State Lunatic Asylum, Utica, Oneida Co. Original.
Bacon, Charles G., Fulton, Oswego Co.
Bagg, M. M., Utica, Oneida Co. Original.
Bailey, Theodore P., 95 Eagle St., Albany, Albany Co. Founder.

* Deceased.

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Bailey, William C., Albion, Orleans Co. Original.
Baker, George W., 48 Bedford Av., Brooklyn, Kings Co. Founder.
Baker, Milan, Warsaw, Wyoming Co. Original.
Banks, George B., Huntington, Suffolk Co. Original.
Banta, Rollin L., 330 Elk St., Buffalo, Erie Co. Original.
Barker, Arthur M., 137 W. Tupper St., Buffalo, Erie Co. Original.
Barnes, Edwin, Pleasant Plains, Dutchess Co. Original.
Barnum, D. Albert, Cassville, Oneida Co.
Barnum, E. E., Waterport, Orleans Co. Original.
Barney, C. S., Glens Falls, Warren Co. Original.
Bartlett, F. W., 112 Ellicott St., Buffalo, Erie Co. Original.
Barton, Lyman, Willsborough, Essex Co. Founder.
Bates, Nelson W., Central Square, Oswego Co.
Bates, Xyris T., New Lebanon, Columbia Co. Original.
Bathgate, James, Fordham Av., Morrisana, New York, New York Co. Original.
Bayley, Guy Carleton, Poughkeepsie, Dutchess Co. Original.
Baynes, William T., 232 N. 2d St., Troy, Rensselaer Co. Original.
Beers, J. E., Danby, Tompkins Co. Founder.
Benham, J. C., Hudson, Columbia Co. Original.
Bennett, Thomas W., Jeffersonville, Sullivan Co. Original.
Bentley, F. R., Cheshire, Ontario Co. Founder.
Biggam, William H., Jr., Fort Plain, Montgomery Co. Original.
Biggs, Herman M., 21 E. 21st St., New York, New York Co. Original.
Birdsall, Gilbert, N. Brookfield, Madison Co. Original.
Blair, L P., McDonough, Chenango Co. Original.
Blake, Clarence R., Northville, Fulton Co. Original.
Blakeman, W. N., 28 W. 37th St., New York, New York Co. Original.
Blumer, G. Alder, State Lunatic Asylum, Utica, Oneida Co. Original.
Boies, Loren F., East Hamburgh, Erie Co. Original.
Bonesteel, William N., Mill St., Troy, Rensselaer Co. Founder.
Bontecou, R. B., Broadway and 4th St., Troy, Rensselaer Co. Original.
Booth, Wilbur H., 172 Genesee St., Utica, Oneida Co. Original.
Bozeman, Nathan, 296 5th Av., New York, New York Co. Founder.
Briggs, Albert H., 262 Hudson St., Buffalo, Erie Co. Original.
Briggs, William H., 138 E. Main St., Rochester, Monroe Co. Original.
Brooks, Leroy J., Norwich, Chenango Co. Original.
Brown, Charles W., 312 W. Church St., Elmira, Chemung Co. Original.
Brundage, Amos H., 561 Henry St., Brooklyn, Kings Co. Original.
Brush, Edward N., State Lunatic Asylum, Utica, Oneida Co. Original.
Brush, E. F., Mount Vernon, Westchester Co. Original.
Bryant, Joseph D., 66 W. 35th St., New York, New York Co. Original.
Buchanan, Alexander, 355 W. 30th St., New York, New York Co. Original.

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Buckley, Charles, 127 E. Main St., Rochester, Monroe Co. Original.
Buckley, James C., 127 E. Main St., Rochester, Monroe Co. Original.
Bucklin, Daniel D., 575 State St., Lansingburgh, Rensselaer Co. Original.
Budd, J. Henry, Geneva, Ontario Co. Original.
Bull, Charles Stedman, 47 E. 23d St., New York, New York Co. Original.
Bullock, E. H., Cazenovia, Madison Co.
Burbeck, Charles H., 22 2d St., Troy, Rensselaer Co. Founder.
Burchard, Thomas H., 24 W. 40th St., New York, New York Co. Original.
Burke, John J. A., 65 East Av., Rochester, Monroe Co. Original.
Burns, William J., Roslyn, Queens Co. Original.
Burton, Matthew H., 75 4th St., Troy, Rensselaer Co. Founder.
Burwell, George N., 130 Pearl St., Buffalo, Erie Co. Original.
Cameron, E. M., 47 W. 26th St., New York, New York Co. Founder.
Campbell, C. N., Poughkeepsie, Dutchess Co. Founder.
Carpenter, H. W., Oneida, Madison Co. Original.
Carroll, Alfred Ludlow, New Brighton, Richmond Co. Founder.
Carter, H. Skelton, 130 E. 24th St., New York, New York Co. Original.
Cavana, Martin, Oneida, Madison Co.
Chace, William, Mayville, Chautauqua Co. Founder.
Chambers, Jacob, Kingston, Ulster Co. Original.
Chambers, M. L., Port Jefferson, Suffolk Co. Original.
Chapman, James, Medina, Orleans Co. Founder.
Chauveau, Jean F., 6 Ludlow Pl., New York, New York Co. Original.
Chittenden, J. H., Binghamton, Broome Co. Founder.
Chrystie, T. M. Ludlow, 100 W. 53d St., New York, New York Co. Original.
* Church, Allen S., New York, New York Co. Founder.
Church, C. A., Black Brook, Clinton Co.
Clark, Alonzo, 23 E. 21st St., New York, New York Co.
Clark, De Witt C., Marathon, Cortland Co. Original.
Clark, Simeon T., Lockport, Niagara Co. Original.
Clarke, Wallace, 136 Park Avenue, Utica, Oneida Co.
Codding, G. H., Amenia, Dutchess Co. Founder.
Coe, H. C., Woman's Hospital, New York, New York Co. Original.
Coit, W. N., Champlain, Clinton Co. Founder.
Collins, Isaac G., Sing Sing, Westchester Co. Founder.
Collins, Thomas B., 141 E. Main St., Rochester, Monroe Co. Original.
Colvin, Darwin, Clyde, Wayne Co. Founder.
Comstock, George F., Saratoga Springs, Saratoga Co. Founder.
Conkling, George, Durham, Greene Co. Original.
Conover, W. S., 149 Lexington Av., New York, New York Co. Founder.
Conway, John Francis, 388 Bedford Av., Brooklyn, Kings Co. Original.
Conway, John R., Jr., 14 Lexington Av., New York, New York Co.

* Deceased.

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Cook, George W., Syracuse, Onondaga Co. Original.
Cooke, George W., Kingston, Ulster Co. Founder.
Cooper, William C., 81 3d St., Troy, Rensselaer Co. Original.
Cooper, William S., 81 3d St., Troy, Rensselaer Co. Founder.
* Cornell, F. O., Port Jackson, Montgomery Co. Original.
* Cotes, J. R., Batavia, Genesee Co. Founder.
Coutant, Richard B., Tarrytown, Westchester Co. Original.
Cramer, William, Poughkeepsie, Dutchess Co. Founder.
Crane, Frank W., Corfu, Genesee Co. Original.
Crawe, J. Mortimer, Watertown, Jefferson Co. Founder.
Creal, Charles E., Saratoga Springs, Saratoga Co. Founder.
Creamer, Joseph, 60 S. 2d St., Brooklyn, E. D., Kings Co.
Creamer, Joseph M., 284 4th St., Brooklyn, E. D., Kings Co.
Crim, Frank D., 171 Genesee St., Utica, Oneida Co.
Crombie, Walter C., Schaghticoke, Rensselaer Co. Original.
Cronyn, John, 55 W. Swan St., Buffalo, Erie Co. Founder.
Crosby, Alexander H., Lowville, Lewis Co.
Curry, Walker, 101 E. 65th St., New York, New York Co. Original.
Dagenais, Alphonse, 848 E. Eagle St., Buffalo, Erie Co. Original.
Dallas, Alexander J., 48 Warren St., Syracuse, Onondaga Co. Founder.
Daniels, Clayton M., 82 N. Pearl St., Buffalo, Erie Co. Original.
Darling, Frank B., Westfield, Chautauqua Co. Original.
* Davidson, John, Hempstead, Queens Co. Founder.
D'Avignon, Francis J., Au Sable Forks, Essex Co. Original.
Dean, H. J., Brockton, Chautauqua Co. Founder.
De La Mater, S. G., Duanesburg, Schenectady Co. Founder.
Denison, Charles Ellery, St. Luke's Hospital, New York, New York Co. Original.
Denison, Ellery, 124 W. 23d St., New York, New York Co. Original.
Dennis, Frederic S., 21 E. 21st St., New York, New York Co. Founder.
Dent, Emmet C., Blackwell's Island Lunatic Asylum, New York, New York Co. Original.
Detmold, William, 38 E. 9th St., New York, New York Co. Founder.
De Witt, Byron, Oswego, Oswego Co. Original.
De Zouche, Isaac, Gloversville, Fulton Co. Founder.
Didama, H. D., 112 S. Salina St., Syracuse, Onondaga Co. Founder.
Dodge, Amos P., Oneida Castle, Oneida Co.
Dodge, L. C., Rouse's Point, Clinton Co. Founder.
Donohue, Florince O., 54 S. Clinton St., Syracuse, Onondaga Co. Original.
Dorland, Elias T., 86 N. Division St., Buffalo, Erie Co. Original.
Douglass, A. J., Ilion, Herkimer Co.
Douglass, Charles E., Constableville, Lewis Co.

* Deceased.

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Douglass, James W., Boonville, Oneida Co.
Drake, D. D., Central Square, Oswego Co.
Du Bois, Abram, 16 W. 30th St., New York, New York Co. Founder.
Du Bois, Matthew B., 16 W. 30th St., New York, New York Co. Original.
Dunlop, J. J., Waterford, Saratoga Co. Original.
Dunn, J., Lodi, Seneca Co. Original.
Dunning, J. D., Webster, Monroe Co. Original.
Eager, William B., Middletown, Orange Co. Original.
Earll, George W., Skaneateles, Onondaga Co. Founder.
Eastman, R. W., Owego, Tioga Co. Original.
Edgerly, E. F., Moriah Center, Essex Co. Founder.
Edwards, Amos S., 367 N. Salina St., Syracuse, Onondaga Co. Original.
Edwards, George A., Catherine and Lodi Sts., Syracuse, Onondaga Co. Original.
Eliot, Ellsworth, 48 W. 36th St., New York, New York Co. Original.
Ellinwood, A. G., Attica, Wyoming Co. Original.
Ellison, M. D., Canisteo, Steuben Co. Original.
Elsner, Henry L., 308 N. Salina St., Syracuse, Onondaga Co. Founder.
Ely, H. O., Binghamton, Broome Co. Original.
English, G. P., Booneville, Oneida Co.
Ennis, Alexander, Pattersonville, Schenectady Co.
Feeley, James F., 296 Lorimer St., Brooklyn, E. D., Kings Co.
Ferguson, E. D., 1 Union Place, Troy, Rensselaer Co. Founder.
Ferguson, James, Glens Falls, Warren Co. Original.
Finder, William, Jr., 2 Union Place, Troy, Rensselaer Co. Founder.
Fitch, William, Dryden, Tompkins Co. Founder.
Flandrau, Thomas M., Rome, Oneida Co.
Fletcher, C. L., Wing Station, Dutchess Co. Original.
Flinn, Thomas W. P., 137 E. 28th St., New York, New York Co.
Flint, Austin, 418 Fifth Ave., New York, New York Co. Founder.
Flint, Austin, Jr., 14 W. 33d St., New York, New York Co. Founder.
Flint, William H., 20 E. 28th St., New York, New York Co. Founder.
Flood, P. H., 501 E. Water St., Elmira, Chemung Co. Original.
Fox, Eli, Mohawk, Herkimer Co.
Franklin, Thomas M., Blackwell's Island Lunatic Asylum, New York, New York Co. Original.
Fraser, Jefferson C., Ava, Oneida Co.
French, S. H., Amsterdam, Montgomery Co.
Fuller, Earl D., 66 Varick St., Utica, Oneida Co.
Fuller, Winfield S., Fairport, Monroe Co. Original.
Furman, Guido, 425 W. 73d St., New York, New York Co. Original.
Furman, J. Henry, Tarrytown, Westchester Co. Original.
Garrish, John P., 417 W. 23d St., New York, New York Co. Original.

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Gay, Charles C. F., 180 Franklin St., Buffalo, Erie Co. Founder.
Gibson, William M., 187 Genesee St., Utica, Oneida Co.
Gillespie, A. A., Bethel, Sullivan Co. Original.
Gillette, Charles A., 13 Montgomery Flats, Syracuse, Onondaga Co. Original.
Gillis, William, Fort Covington, Franklin Co. Founder.
Glass, J. H., 170 Genesee St., Utica, Oneida Co.
Glidden, Charles H., Little Falls, Herkimer Co. Original.
Gould, Cassius W., Buffalo, Erie Co.
Gouley, John W. S., 824 Madison Ave., New York, New York Co. Founder.
Govan, William, Stony Point, Rockland Co. Founder.
Grant, Charles S., Saratoga Springs, Saratoga Co. Founder.
Graves, Ezra, Amsterdam, Montgomery Co. Original.
Gray, John P., State Lunatic Asylum, Utica, Oneida Co. Founder.
Gray, John P., Jr., State Lunatic Asylum, Utica, Oneida Co.
Gray, John W., Avon, Livingston Co. Founder.
Green, Caleb, Homer, Cortland Co. Founder.
Green, H. H., Paine's Hollow, Herkimer Co.
Greene, De Witt C., Buffalo, Erie Co. Original.
Greene, Joseph C., 124 E. Swan St., Buffalo, Erie Co. Founder.
Greene, Walter D., 444 Elk St., Buffalo, Erie Co. Original.
Griswold, Gaspar, 251 Madison Ave., New York, New York Co. Original.
Guernsey, Desault, Amenia, Dutchess Co. Founder.
Hagadorn, William, Gilboa, Schoharie Co. Original.
Hall, H. C., Lisle, Broome Co. Original.
Hall, John E., 62 George St., Green Island, Albany Co. Original.
Hall, William A., Fulton, Oswego Co. Original.
Hall, W. H., Saratoga Springs, Saratoga Co. Original.
Hamilton, Frank H., 48 W. 32d St., New York, New York Co. Founder.
Hannon, J. C., Hoosick Falls, Rensselaer Co. Founder.
Harrington, D. W., 1430 Main St., Buffalo, Erie Co. Original.
Harrison, George Tucker, 221 W. 23d St., New York, New York Co. Original.
Hartmann, Jacob, 206 W. 33d St., New York, New York Co. Original.
Harvie, J. B., 575 1st St., Troy, Rensselaer Co. Founder.
Hatch, C. A., 6 E. Onondaga St., Syracuse, Onondaga Co. Original.
Head, A. D., Syracuse, Onondaga Co. Founder.
Heimstreet, Thomas B., 18 Liberty St., Troy, Rensselaer Co. Original.
Hendrick, Henry C., McGrawville, Cortland Co. Founder.
Hicks, W. Scott, Bristol, Ontario Co. Original.
Higgins, S. M., Memphis, Onondaga Co. Original.
Hills, L. H., Cooperstown, Otsego Co. Original.
Hills, S. Augden, 58 E. 123d St., New York, New York Co. Original.

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Hinds, F. J., Salem, Washington Co. Original.
Hinton, John H., 41 W. 32d St., New York, New York Co. Founder.
Hodgman, Abbott, 141 E. 38th St., New York, New York Co. Founder.
Hodgman, William H., 109 Caroline St., Saratoga Springs, Saratoga Co. Founder.
Holden, Arthur L., 116 South St., Utica, Oneida Co.
Hollister, E. O., East Bloomfield, Ontario Co. Original.
Hoornbeck, Philip Du Bois, Wawarsing, Ulster Co. Original.
Houston, D. W., 62 Oneida St., Cohoes, Albany Co. Original.
Hovey, B. L., 34 N. Fitzhugh St., Rochester, Monroe Co. Founder.
Howe, E. S., Saranac, Clinton Co. Original.
Hoyer, F. F., Tonawanda, Erie Co. Founder.
Hubbard, Oliver P., 65 W. 19th St., New York, New York Co.
Hubbard, Samuel T., 27 W. 9th St., New York, New York Co. Founder.
Hughes, Henry R., Clinton, Oneida Co.
Hühne, August, Rondout, Ulster Co. Founder.
Hühne, Frederick, Kingston, Ulster Co. Original.
Hunt, James G., 5 Gardner Block, Utica, Oneida Co. Original.
Hunt, James H., Port Jervis, Orange Co. Original.
Huntington, H. K., New Rochelle, Westchester Co. Original.
Huntington, J. W., Mexico, Oswego Co.
Husted, Nathaniel C., Tarrytown, Westchester Co. Founder.
Hutchison, Joseph C., 130 Hicks St., Brooklyn, Kings Co. Founder.
Hyde, Frederick, Cortland, Cortland Co. Founder.
Ilgen, Ernest, 213 E. 17th St., New York, New York Co. Original.
Ingraham, Samuel, Palmyra, Wayne Co. Original.
Jackson, A. P., Oakfield, Genesee Co. Founder.
Jackson, D. P., Binghamton, Broome Co. Original.
Jacobson, Nathan, 114 S. Salina St., Syracuse, Onondaga Co. Original.
Jamison, John S., Hornellsville, Steuben Co. Original.
Janeway, Edward G., 51 E. 25th St., New York, New York Co. Founder.
Jenkins, John A., 702 Leonard St., Brooklyn, E. D., Kings Co. Original.
Jewett, Homer O., Cortland, Cortland Co. Founder.
Johnson, Charles M., Watertown, Jefferson Co. Founder.
Johnson, George P., Mexico, Oswego Co.
Johnson, I. G., Greenfield Center, Saratoga Co. Original.
Johnson, L. M., Greene, Chenango Co. Original.
Johnson, P. H., Adams, Jefferson Co. Original.
Johnson, Richard G., Amsterdam, Montgomery Co. Original.
Johnson, Thomas M., 309 Main St., Buffalo, Erie Co. Original.
Johnston, F. U., New Brighton, Richmond Co. Founder.
Joslin, Albert A., Greig, Lewis Co.
Kelly, John Devin, 181 Genesee St., Utica, Oneida Co.

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Kenyon, M., Moravia, Cayuga Co. Original.
King, J. E., 16 E. Seneca St., Buffalo, Erie Co. Original.
Kingsley, H. F., Schoharie, Schoharie Co. Original.
Kittridge, C. M., Fishkill-on-Hudson, Dutchess Co. Founder.
Knapp, E. A., Jamesville, Onondaga Co. Original.
Knapp, John H., Harford, Cortland Co. Original.
Kneeland, Jonathan, S. Onondaga, Onondaga Co. Founder.
Kuhn, William, Rome, Oneida Co.
La Bell, M. J., Lewis, Essex Co. Original.
Laird, William R., 98 Wall St., Auburn, Cayuga Co. Original.
Landon, N. E., Newark, Wayne Co. Original.
Lancashire, J. H., Saratoga Springs, Saratoga Co. Founder.
Lauer, Eugen, 308 E. 15th St., New York, New York Co. Original.
Leach, H. M., Glen, Montgomery Co. Original.
Leale, Charles A., 604 Madison Ave., New York, New York Co. Founder.
Leaning, J. K., Fly Creek, Otsego Co. Founder.
Leighton, N. W., 143 Taylor St., Brooklyn, E. D., Kings Co. Original.
Leroy, J. D., Poughkeepsie, Dutchess Co. Founder.
Lester, Elias, Seneca Falls, Seneca Co. Founder.
Lester, S. W., 381 1st St., Troy, Rensselaer Co. Original.
Lindsay, Walter, Huntington, Suffolk Co. Original.
Linsly, Jared, 22 Lafayette Pl., New York, New York Co. Founder.
Lloyd, T. Mortimer, 163 Congress St., Brooklyn, Kings Co. Original.
Lockwood, J. W., Claverack, Columbia Co. Original.
Long, Ben. G., 1430 Main St., Buffalo, Erie Co.
Lung, Jesse B., 20 Utica Ave., Brooklyn, Kings Co. Original.
Lusk, William T., 47 E. 34th St., New York, New York Co. Founder.
Lyman, E. S., Sherburne, Chenango Co. Original.
Lyman, H. C., Sherburne, Chenango Co. Original.
Lynch, Patrick J., 216 E. 13th St., New York, New York Co.
Lynde, U. C., 13 Niagara St., Buffalo, Erie Co. Original.
Lyon, E. M., Plattsburgh, Clinton Co. Founder.
Lyon, George E., 494 Groton St., West Troy, Albany Co. Original.
Lyons, G. A., New Rochelle, Westchester Co. Original.
MacDonald, Carlos F., Asyl. for Ins. Criminals, Auburn, Cayuga Co. Founder.
Magee, Daniel, 121 4th St., Troy, Rensselaer Co. Original.
Magee, John, 484 State St., Lansingburgh, Rensselaer Co. Original.
Manley, Thomas H., 244 W. 55th St., New York, New York Co. Founder.
Marsh, James P., 1 Union Pl., Troy, Rensselaer Co.
Martin, J. H., Otego, Otsego Co. Original.
Martine, Godfrey R., Glens Falls, Warren Co. Original.
McCollom, William, 195 Lefferts Pl., Brooklyn, Kings Co. Original.

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McDonald, George E., Schenectady, Schenectady Co. Original.
McEwen, Robert C., Saratoga Springs, Saratoga Co. Founder.
McGann, Thomas, Wells, Hamilton Co.
McKenzie, E., Port Ewen, Ulster Co. Founder.
McLeod, S. B. Wylie, 247 W. 23d St., New York, New York Co. Founder.
McLochlin, James A., 203 7th Ave., New York, New York Co. Original.
McNamara, Daniel L., Batavia, Genesee Co. Original.
McNamara, Laurence J., 272 W. 4th St., New York, New York Co. Original.
McTammany, William F., 192 3d St., Troy, Rensselaer Co. Original.
Meier, G. C. H., 215 E. 53d St., New York, New York Co.
Menzie, R. J., Caledonia, Livingston Co. Original.
Merritt, George, Cherry Valley, Otsego Co. Original.
Miller, J. H., Carthage, Jefferson Co.
Miller, William T., 336 W. 48th St., New York, New York Co. Original.
Minard, E. J. C., 243 Quincy St., Brooklyn, Kings Co. Original.
Miranda, Ramon L., 54 W. 37th St., New York, New York Co. Original.
Mitchell, H. E., 45 5th St., Troy, Rensselaer Co. Founder.
Mitchell, Hubbard W., 747 Madison Ave., New York, New York Co. Original.
Moore, E. M., 74 N. Fitzhugh St., Rochester, Monroe Co. Founder.
Moore, E. M., Jr., 74 N. Fitzhugh St., Rochester, Monroe Co. Original.
Moore, Joseph W., 92 Mohawk St., Cohoes, Albany Co. Founder.
Moore, Richard Mott, 74 N. Fitzhugh St., Rochester, Monroe Co. Original.
Moyer, F. H., Moscow, Livingston Co. Original.
Munger, Charles, Knoxboro, Oneida Co.
Munson, J. A., Grahamsville, Sullivan Co. Original.
Munson, W. W., Otisco, Onondaga Co. Original.
Murdock, G. W., Cold Spring, Putnam Co. Founder.
Murphy, John, 219 E. 37th St., New York, New York Co. Original.
Murray, B. J., Wilton, Saratoga Co. Original.
Murray, S. J., 207 Washington Park, Brooklyn, Kings Co. Original.
Murray, W. D., Tonawanda, Erie Co. Original.
Nelson, George W., Orwell, Oswego Co.
Nelson, William H., Taberg, Oneida Co.
Newberry, J. S., Columbia College, New York, New York Co.
Newman, Robert, 68 W. 35th St., New York, New York Co. Original.
Nichols, C. E., 57 4th St., Troy, Rensselaer Co. Founder.
Nichols, H. W., Canandaigua, Ontario Co. Founder.
Nichols, W. H., West Land Lake, Rensselaer Co. Founder.
Nicholson, A. R., Madison, Madison Co. Original.
Nicoll, Henry D., 7 W. 39th St., New York, New York Co. Founder.
Nold, John B., 165 North Ave., Rochester, Monroe Co.
North, Nelson L., 108 Ross St., Brooklyn, E. D., Kings Co. Original.

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Oberndorfer, Isodor P., 959 Lexington Ave., New York, New York Co. Original.
O'Hare, Thomas A., 157 State St., Rochester, Monroe Co. Original.
Oliver, William, Penn Yan, Yates Co.
Orton, John G., Binghamton, Broome Co. Founder.
Paine, Arthur R., 479 Clinton St., Brooklyn, Kings Co. Original.
Palmer, George M., Pike, Wyoming Co. Original.
Palmer, H. C., Rome, Oneida Co.
Palmer, W. B., 30 South St., Utica, Oneida Co.
Parr, John, Burl, Montgomery Co.
Parsons, Israel, Marcellus, Onondago Co. Founder.
Parsons, John, Kingsbridge, New York Co. Original.
Partridge, Charles C., 207 Greene Ave., Brooklyn, Kings Co. Original.
* Pask, William, Buffalo, Erie Co. Original.
Pease, Joseph, Hamlin, Monroe Co. Original.
* Peck, M. R., Glens Falls, Warren Co. Founder.
Perry, N. M., Troupsburgh, Steuben Co. Original.
Peters, Samuel, 86 Mohawk St., Cohoes, Albany Co. Founder.
Pettit, John A., 526 S. Division St., Buffalo, Erie Co. Original.
Pilgrim, Charles W., State Lunatic Asyl., Utica, Oneida Co. Original.
Pollard, A., Westport, Essex Co. Original.
Pomeroy, C. G., Newark, Wayne Co. Founder.
Pooler, Hiram A., Goshen, Orange Co. Original.
Porteous, J. G., Poughkeepsie, Dutchess Co. Founder.
Porter, H. N., New York Mills, Oneida Co. Founder.
Porter, P. Brynberg, 22 W. 31st St., New York, New York Co. Original.
Potter, Vaughn C., Starkville, Herkimer Co. Original.
Pray, S. R., 555 Quincy St., Brooklyn, Kings Co. Original.
Preston, J. R., Schuylerville, Saratoga Co. Original.
Prier, John H., 523 Union St., Elmira, Chemung Co. Original.
Pryer, William C., New Rochelle, Westchester Co. Founder.
Pultz, M. T., Stanfordville, Dutchess Co. Founder.
Purdy, Isaac, Mongaup Valley, Sullivan Co. Original.
Purple, Samuel S., 36 W. 22d St., New York, New York Co. Founder.
Putnam, Frederick W., Binghamton, Broome Co. Founder.
Putnam, James W., 130 Pearl St., Buffalo, Erie Co. Original.
Quinn, Hamilton S., 171 Genesee St., Utica, Oneida Co.
Race, W. F., Binghamton, Broome Co. Original.
Rae, Robert, Portageville, Wyoming Co. Original.
Rand, Hannibal W., Keene, Essex Co. Original.
Rave, Edward G., Hicksville, Queens Co. Original.
Reagles, James, Schenectady, Schenectady Co. Original.

* Deceased.

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Reid, C. C., Rome, Oneida Co.
Reynolds, R. C., Pittsford, Monroe Co. Founder.
Reynolds, Tabor B., Saratoga Springs, Saratoga Co. Founder.
Rhodes, S. D., Seneca Falls, Seneca Co. Original.
Rice, Isaac, Bloomingdale, Essex Co. Original.
Richards, C. B., Binghamton, Broome Co. Founder.
Ricketts, Benjamin M., 146 E. 36th St., New York, New York Co. Original.
Riley, Andrew W., Au Sable Forks, Clinton Co. Original.
Ring, William, 864 Niagara St., Buffalo, Erie Co. Founder.
Robb, William H., Amsterdam, Montgomery Co. Founder.
Robinson, Ezra A., Jay, Essex Co. Original.
Rochester, Thomas F., 216 Franklin St., Buffalo, Erie Co. Founder.
Rogers, S. Frank, 123 Vail Ave., Troy, Rensselaer Co. Original.
Ross, Frank W., 251 Baldwin St., Elmira, Chemung Co. Original.
Rousseau, Zotique, 108 2d St., Troy, Rensselaer Co. Founder.
Rulison, Elbert T., Amsterdam, Montgomery Co. Original.
Rushmore, J. D., 129 Montague St., Brooklyn, Kings Co. Founder.
Russell, W. G., 165 S. 9th St., Brooklyn, E. D., Kings Co. Original.
Sabin, Robert H., 245 Broadway, West Troy, Albany Co. Founder.
Sabin, W. B., 245 Broadway, West Troy, Albany Co. Founder.
Sabine, Gustavus A., 8 E. 24th St., New York, New York Co. Original.
Sawyer, Conant, Au Sable Forks, Essex Co. Founder.
Saxer, Leonard A., N. Salina and Union Sts., Syracuse, Onondaga Co. Original.
Sayers, Alexander, Marion, Wayne Co. Original.
Sayre, Lewis A., 285 Fifth Ave., New York, New York Co. Founder.
Sayre, Lewis Hall, 285 Fifth Ave., New York, New York Co. Founder.
Schmid, H. Ernest, White Plains, Westchester Co. Original.
Schoonmaker, E. J., Magee's Corners, Seneca Co. Founder.
Segur, Avery, 281 Henry St., Brooklyn, Kings Co. Founder.
Selden, O. G., Catskill, Greene Co. Original.
Selden, Robert, Catskill, Greene Co. Original.
Seymour, W. Wotkyns, 105 3d St., Troy, Rensselaer Co. Founder.
Sharer, John P., Little Falls, Herkimer Co. Original.
Shepard, A. Warren, 126 Willoughby St., Brooklyn, Kings Co. Original.
Sherer, J. D., Waterford, Saratoga Co. Original.
Shrady, John, 66 W. 126th St., New York, New York Co.
Simmons, E. W., Canandaigua, Ontario Co. Founder.
Sizer, Nelson Buell de S., 336 Greene Ave., Brooklyn, Kings Co. Original.
Skiff, George V., 102 W. 49th St., New York, New York Co. Original.
Skinner, L. C., Belle Isle, Onondaga Co. Founder.
Skinner, S. A., Hoosick Falls, Rensselaer Co. Original.

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Slack, Henry, Fishkill-on-Hudson, Dutchess Co. Founder.
Slocum, J. O., Camillus, Onondaga Co. Founder.
Smelzer, B. T., Havana, Schuyler Co.
Smith, David M., Penn Yan, Yates Co.
Smith, George C., Delhi, Delaware Co.
Smith, H. Lyle, Hudson, Columbia Co. Original.
Smith, J. Lewis, 227 W. 49th St., New York, New York Co. Original.
Smith, Joseph T., Canandaigua, Ontario Co. Founder.
Smith, Marcellus R., Cincinnatus, Cortland Co. Original.
Smith, Samuel W., 40 W. 25th St., New York, New York Co. Original.
Smith, Stephen, 31 W. 42d St., New York, New York Co. Original.
Southworth, Mark A., Little Falls, Herkimer Co. Original.
Southworth, R. J., Yonkers, Westchester Co. Original.
Sprague, J. A., Williamson, Wayne Co. Original.
Sprague, W. B., Pavilion, Genesee Co. Founder.
Squibb, E. H., 152 Columbia Heights, Brooklyn, Kings Co. Founder.
Squibb, E. R., 152 Columbia Heights, Brooklyn, Kings Co. Founder.
Squire, C. L., 409 E. Church St., Elmira, Chemung Co.
Steinke, Carl Otho Hermann, 220 17th St., Brooklyn, Kings Co. Original.
* Stephens, Frederick P., 83 Lexington Ave., New York, New York Co. Original.
Stephenson, J. A., Scio, Allegany Co. Original.
Strong, Thomas D., Westfield, Chautauqua Co. Founder.
Stubbs, Roland H., Waterford, Saratoga Co. Original.
Sutton, G. L., Massena, St. Lawrence Co. Original.
Swartwout, Leander, Prospect, Oneida Co.
Sweet, Joseph, Unadilla, Otsego Co. Original.
Taylor, Isaac E., 9 E. 86th St., New York, New York Co. Founder.
Taylor, John H., Holley, Orleans Co. Original.
Thayer, William Henry, 171 Livingston St., Brooklyn, Kings Co. Original.
Thomas, T. Gaillard, 294 Fifth Ave., New York, New York Co. Founder.
Thornton, William H., 40 Fargo Ave., Buffalo, Erie Co.
Todd, John B., Parish, Oswego Co.
Tompkins, H. C., Knowlesville, Orleans Co. Founder.
Tompkins, O. A., East Randolph, Cattaraugus Co. Original.
Townsend, M. W., Bergen, Genesee Co. Founder.
Traver, R. D., 8 Waverly Pl., Troy, Rensselaer Co. Original.
Tremaine, W. S., Buffalo, Erie Co. Founder.
Tripp, John D., Virgil, Cortland Co. Original.
Tucker, Carlos P., 43 W. 26th St., New York, New York Co. Founder.
Tully, A. M., Oswego, Oswego Co. Original.
Turner, Melvin H., Hammondsville, Essex Co. Original.

* Deceased.

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Tyler, Howell, Blackwell's Island Lunatic Asylum, New York, New York Co. Original.
Van De Warker, Ely, 45 Montgomery St., Syracuse, Onondaga Co. Founder.
Vanderhoof, F. D., Phelps, Ontario Co. Original.
Van Hoevenberg, H. Kingston, Ulster Co. Original.
Van Vranken, Adam T., 74 Ohio St., West Troy, Albany Co. Original.
Van Wyck, R. C., Hopewell Junction, Dutchess Co. Original.
Van Zandt, H. C., Schenectady, Schenectady Co. Original.
Vaughn, Frank O., 438 Swan St., Buffalo, Erie Co. Original.
Wagner, Charles Gray, State Lunatic Asylum, Utica, Oneida Co.
Wakely, B. C., Angelica, Allegany Co. Original.
Wales, Theron A., Elmira, Chemung Co. Original.
Wallach, Joseph G., 159 E. 62d St., New York, New York Co. Original.
Ward, Charles S., 18 W. 30th St., New York, New York Co. Founder.
Ward, Stanley M., Ellenville, Ulster Co. Original.
Warner, John W., 82 Lexington Ave., New York, New York Co.
Webb, Edwin, Hempstead, Queens Co. Original.
Wells, William L., New Rochelle, Westchester Co. Original.
West, M. C., Rome, Oneida County.
White, Whitman V., 1522 Park Ave., New York, New York Co. Founder.
White, William T., 130 E. 30th St., New York, New York Co. Founder.
Whitehorne, Edward E., Blackwell's Island Lunatic Asylum, New York, New York Co. Original.
Whitford, James, Onondaga Valley, Onondaga Co. Original.
Wieber, George, 181 S. 5th St., Brooklyn, Kings Co. Original.
Wiener, Joseph, 102 E. 61st St., New York, New York Co. Founder.
Williams, William H., 607 Third Ave., Brooklyn, Kings Co. Original.
Wilson, Thomas, Claverack, Columbia Co. Founder.
Winship, C. A., Millville, Rensselaer Co. Original.
Wood, Charles S., 171 W. 47th St., New York, New York Co. Founder.
Woodend, W. D., Huntington, Suffolk Co. Founder.
Wyckoff, C. C., 482 Delaware St., Buffalo, Erie Co. Founder.
Wyckoff, Richard M., 532 Clinton Ave., Brooklyn, Kings Co. Founder.
Wyeth, John A., 36 W. 33d St., New York, New York Co. Original.
Young, Augustus A., Newark, Wayne Co. Original.
Young, John, Fishkill-on-Hudson, Dutchess Co. Original.
Young, John D., Starkville, Herkimer Co. Original.
Young, Oscar H., Sidney Centre, Delaware Co. Original.
Young, William, 145 W. 42d St., New York, New York Co. Founder.

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